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# NAVAL POSTGRADUATE SCHOOL

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## THESIS

AN ANALYSIS OF THE EFFECTIVENESS  
OF THE  
PROBLEM SOLVING SKILLS FOR  
MANAGERS TRAINING PACKAGE--USCG

by

Dennis J. Ihnat

March 1984

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## 20. ABSTRACT (Continued)

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An Analysis of the Effectiveness  
of the  
Problem Solving Skills for Managers Training Package--USCG

by

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## ABSTRACT

This thesis examines the "Problem Solving Skills for Managers" training package, piloted by the Coast Guard Leadership and Management School in April 1983. Four questionnaire instruments developed by the company which produced the training package were analyzed to determine the effectiveness of the training program. A quasi-experimental pre-test/post-test/control group research design was used by the Coast Guard project manager and this thesis used a regression procedure to counteract any regression effect. The results of the analysis suggest that the training program was not effective as given and suggests further study to determine why it was not effective.

## TABLE OF CONTENTS

I.	INTRODUCTION . . . . .	11
	A. BACKGROUND . . . . .	11
	B. PURPOSE . . . . .	14
II.	METHODOLOGY . . . . .	16
	A. RESEARCH SETTING AND DESIGN . . . . .	16
	B. INSTRUMENTATION . . . . .	18
	1. Subordinate Organization Survey (SUBQ) . . . . .	19
	2. Supervisory Organization Survey (SUPQ) . . . . .	19
	3. Multiple Choice Questionnaire (MCQ) . . . . .	19
	4. Supervisory Evaluation of Training (SETQ) . . . . .	20
	C. SAMPLE . . . . .	20
	D. PROCEDURE . . . . .	22
	1. Approach . . . . .	23
	2. Hypotheses to be Tested . . . . .	35
III.	RESULTS . . . . .	45
	A. REGRESSION RESULTS . . . . .	45
	B. HYPOTHESIS A . . . . .	47
	C. HYPOTHESIS B . . . . .	51
	D. HYPOTHESIS C . . . . .	51
	E. HYPOTHESIS D . . . . .	53
	F. HYPOTHESIS E . . . . .	55
IV.	DISCUSSION . . . . .	58
	A. INTRODUCTION . . . . .	58

B. INSTRUMENTATION . . . . .	59
C. SAMPLE . . . . .	61
D. REGRESSION PROCEDURE . . . . .	62
E. RESULTS . . . . .	63
1. Behavior Criteria: Early Treatment Groups . . . . .	63
2. Behavior Criteria: Late Treatment Groups . . . . .	66
3. Learning Criteria . . . . .	68
4. Results Criteria . . . . .	69
F. CONCLUSIONS AND RECOMMENDATIONS . . . . .	70
APPENDIX A: QUESTIONNAIRE CODING . . . . .	76
A. INTRODUCTION . . . . .	76
B. SUBORDINATE ORGANIZATION SURVEY . . . . .	77
C. SUPERVISORY ORGANIZATION SURVEY . . . . .	89
D. MULTIPLE CHOICE QUESTIONNAIRE . . . . .	100
E. SUPERVISOR EVALUATION OF TRAINING . . . . .	109
APPENDIX B: SUBQ PART III FACTOR ANALYSIS DOCUMENTA- TION . . . . .	121
A. EIGENVALUES, MEANS AND STANDARD DEVIATIONS . . . . .	121
B. CORRELATION MATRIX FOR VARIABLES . . . . .	122
APPENDIX C: SUBQ PART II FACTOR ANALYSIS DOCUMENTATION . . . . .	127
A. EIGENVALUES, MEANS, STANDARD DEVIATIONS AND CORRELATION MATRIX FOR SUBORDINATE PERCEPTION OF ORGANIZATIONAL CLIMATE . . . . .	127

B. EIGENVALUES, MEANS, STANDARD DEVIATIONS AND CORRELATION MATRIX FOR SUBORDINATE SATISFACTION . . . . .	130
C. EIGENVALUES, MEANS, STANDARD DEVIATIONS AND CORRELATION MATRIX FOR SUBORDINATE COMMITMENT . . . . .	132
LIST OF REFERENCES . . . . .	134
INITIAL DISTRIBUTION LIST . . . . .	135



# LIST OF TABLES

I.	Sample Sizes by Unit and Category . . . . .	21
II.	SUBQ Part III Factor One--Problem Solving Support . . . . .	26
III.	SUBQ Part III Factor Two--Passing the Buck . . .	28
IV.	Sub-Hypotheses for H(A) . . . . .	37
V.	Sub-Hypotheses for H(B) . . . . .	39
VI.	Sub-Hypotheses for H(C) . . . . .	41
VII.	Sub-Hypotheses for H(D) . . . . .	43
VIII.	Sub-Hypotheses for H(E) . . . . .	44
IX.	Regression Analysis Results . . . . .	46
X.	Residuals T-Test Results . . . . .	48
XI.	Actual-Score T-Test Results . . . . .	50
XII.	T-Test Results for Sub-Hypotheses of H(B) . . . .	52
XIII.	T-Test Results for Sub-Hypotheses of H(C) . . . .	54
XIV.	T-Test Results for Sub-Hypotheses of H(D) . . . .	56
XV.	T-Test Results for Sub-Hypotheses of H(E) . . . .	57
XVI.	Demographic Data . . . . .	66

## LIST OF FIGURES

1.1	General ISD Model . . . . .	13
2.1	Project Timeline and Training Design . . . . .	17
2.2	Scree Test for SUBQ Part III Administration 1 . . . . .	25
2.3	Scree Test for Organizational Climate . . . . .	32
2.4	Scree Test for Satisfaction . . . . .	33
2.5	Scree Test for Commitment . . . . .	34
2.6	Hypotheses to be Tested . . . . .	35
2.7	Hypothesis A . . . . .	35
2.8	Hypothesis B . . . . .	38
2.9	Hypothesis C . . . . .	40
2.10	Hypothesis D . . . . .	40
2.11	Hypothesis E . . . . .	42
3.1	Hypothesis A . . . . .	47
3.2	Hypothesis B . . . . .	51
3.3	Hypothesis C . . . . .	53
3.4	Hypothesis D . . . . .	53
3.5	Hypothesis E . . . . .	55
4.1	Problem Solving Support . . . . .	71
4.2	Passing the Buck . . . . .	72
4.3	Multiple-Choice Questionnaire Score . . . . .	72
4.4	Subordinate Perception of Organizational Climate . . . . .	73
4.5	Subordinate Satisfaction . . . . .	73
4.6	Subordinate Commitment . . . . .	74

4.7	Supervisor Perception of Organizational Climate . .	74
.8	Supervisor Satisfaction . . . . .	75
4.9	Supervisor Commitment . . . . .	75

## I. INTRODUCTION

"The dollar spent on training today is a marginal dollar. Today, more than ever, training professionals must demonstrate the effectiveness of their programs.... Spending money on unnecessary training, inappropriate training, or training that doesn't train can spell disaster for those who design such programs." [Ref. 1]

### A. BACKGROUND

These introductory remarks were written by a learning technology manager in industry, but they apply equally well to the government sector in general and to the Coast Guard in particular. Training plays a vital role in preparing Coast Guard personnel for the increasingly complex skills required to meet the challenges of technological growth. Training is required to insure that the Coast Guard can take advantage of modern technology by using all of its resources as effectively and efficiently as possible. These include financial, physical and human resources. It has been said that people are the Coast Guard's most important asset.<sup>1</sup> Leadership has traditionally been important in the military services to insure the "good order and discipline" of these assets. The effective management of these human resources becomes even more important as increasing amounts

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<sup>1</sup>For example, see former Coast Guard Commandant Admiral John B. Hayes' State of the Coast Guard address of 16 January 1979.

of time and money are invested in their training and development. This is one of the reasons that leadership and management training is provided to those in supervisory positions.

The Coast Guard recognizes the need to efficiently use these training dollars and has prescribed the responsibilities and techniques for training management [Ref. 2]. One of the techniques is the use of Instructional Systems Development (ISD), a method of identifying training needs, determining the optimal training methods, developing an appropriate training design, implementing and evaluating the training. A diagram of the basic ISD process is provided by Figure 1.1.

This thesis will examine the "Problem Solving Skills for Managers" training package, developed by Interact Performance Systems, Incorporated, in 1982, and piloted by the Coast Guard Leadership School during the period 5 April 1983 through 2 August 1983. The main objective of the training is for supervisors to increase their effectiveness in dealing with interpersonal problems in their work settings by using the steps in the problem solving process that are described in the training. In this particular training program, participants learn to communicate the situation in a specific and non-threatening manner; to diagnose the situation as an ability or a motivation problem; to communicate the consequences--natural (e.g. the job will not get done), to others, to the supervisor, or imposed--until compliance is gained;

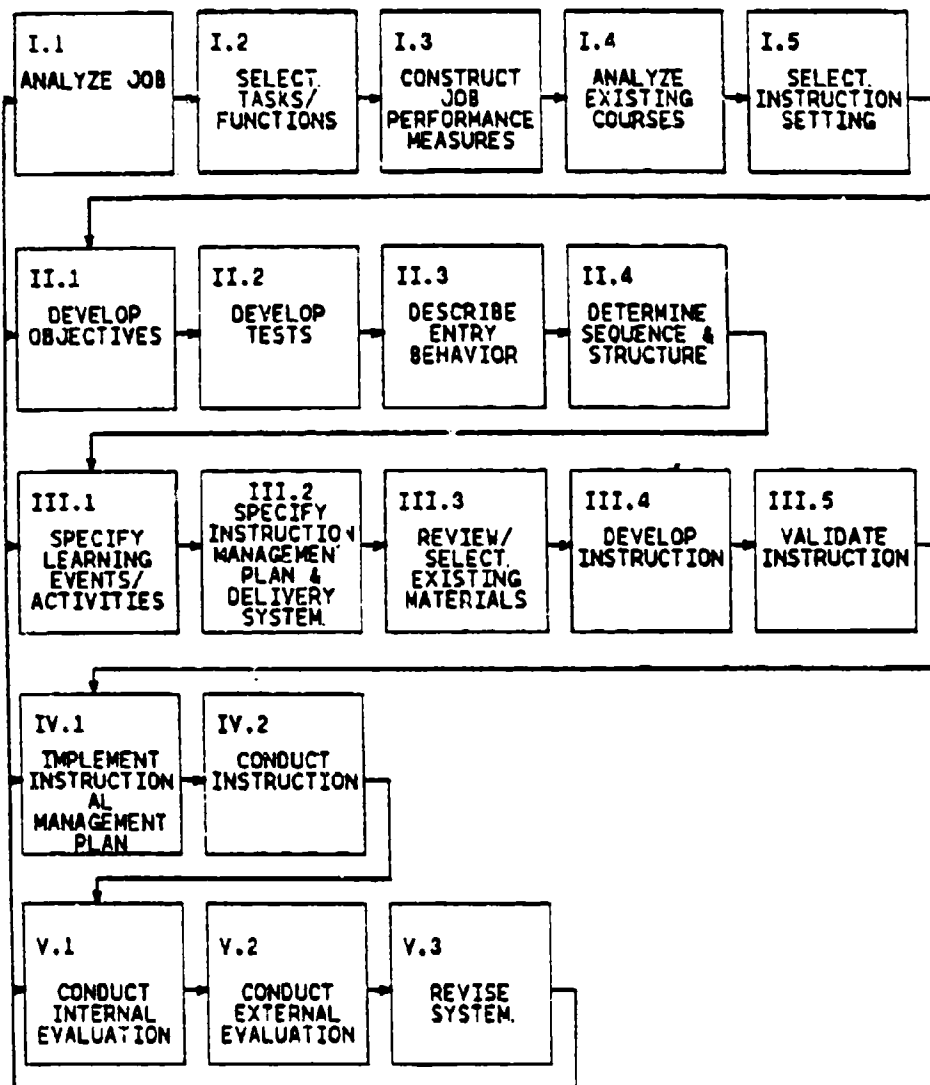


Figure 1.1 General ISD Model

to determine who does what/when and set a follow-up date; how to find long-term solutions; and how to deal with emergent problems. The process involves extensive use of videotaped modules showing both ineffective and effective behaviors, structured role-playing and group discussions. The training is given in a series of four one-day segments, one segment per week. After each training segment, participants "contract" to practice their skills during the week and to report their results when the class next meets.

#### B. PURPOSE

The purpose of this thesis is to accomplish a portion of the evaluation phase required by ISD [Ref. 2], and in particular the internal evaluation of the "Problem Solving Skills for Managers" training package piloted by the Coast Guard Leadership School during the period 5 April 1983 through 2 August 1983. (The other phases of the ISD process in relation to this training package will not be discussed in this thesis and are assumed to have been completed prior to this stage.) Internal evaluation refers to an analytical means of measuring the instruction process by determining student reaction or degree of behavioral change attributed to the actual training [Ref. 2]. The instruments used to measure the instruction process consist of a series of questionnaires designed by the developer of the training process. The training was conducted by a staff member of the Coast Guard Leadership and Management School. The data was

collected and a computerized data base established by the leadership school staff. The purpose of this thesis is to analyze the data and make a determination of the effectiveness of the training package.



## II. METHODOLOGY

### A. RESEARCH SETTING AND DESIGN

The "Problem Solving Skills for Managers" training package was presented to supervisors at four Coast Guard stations in the Twelfth District (San Francisco area) as a pilot program with the goal of determining if the training should be pursued on a larger scale within the Coast Guard. Two stations were trained initially while the remaining two stations were used as a "control group." These "control group" stations subsequently received the same training. For clarity and consistency throughout this thesis, the first group to receive the training will be referred to as the "Early Treatment Group" and the second group to receive the training as the "Late Treatment Group" (see Figure 2.1).

The first portion of the training design used by the Coast Guard Leadership and Management School Project Manager/Trainer is referred to as a quasi-experimental, non-equivalent control group design [Ref. 3]. It involves an experimental group and a control group ("early" and "late" treatment groups, respectively), both given pre- and post-measures. The early group and late group do not have pre-experimental sampling equivalence. These groups constitute the "naturally assembled collectives" of four Coast Guard stations, matched as closely as possible for size

TIMELINE (1983)						
UNITS	PRE- MEASURES	TRAINING (April)	POST- MEASURES	PRE- MEASURES	TRAINING (May)	POST LONG POST
E300	6 April	6,13,20,27	27 April			31 May 1 Aug
E500	7 April	7,14,21,28	28 April			31 May 1 Aug
-----						
L400	4 April			4 May	4,11,18,25	25 May 2 Aug
L600	5 April			3 May	3,10,17,24	24 May 3 Aug
-----						
TRAINING DESIGN						
"early"	0 (1)	X		0 (2)	X	0 (3) 0 (4)
"late"	0 (1)			0 (2)	X	0 (3) 0 (4)
-----						
Note: "0" refers to the measurement instruments; the number in parentheses refers to the administration number (e.g. 0(1) is the first administration of these instruments. "X" refers to the training period.						

Figure 2.1 Project Timeline and Training Design

(total numbers of people assigned, supervisors and subordinates combined) and organizational profile (operational mission, common group commander, rank of those in leadership positions within the organizational structure). That is, the participants are not randomly selected or assigned to these groups as a "true" experimental design would require. The assignment of the treatment to one group or another is assumed to be random and under the researcher's control.

The training was conducted at each station by the same experienced instructor from the Coast Guard Leadership and Management School in Petaluma, California. The data collected with the measurement instruments was transcribed by the Management School staff to form a raw computerized data base. This researcher organized the data base into four files, one for each type of questionnaire, for subsequent analysis.

#### B. INSTRUMENTATION

The same pre-measures and post-measures were given to each of the control and experimental groups, and consisted of a set of four questionnaires that were administered at the points in the training design as shown in Figure 2.1. These questionnaires were designed by the company that developed and produced the training package.

1. Subordinate Organization Survey (SUBQ)

This questionnaire consists of three parts: demographics; subordinates' perception of organizational climate, satisfaction and commitment; and subordinates' perception of their supervisors' behavior in dealing with problems. It was completed by the subordinates of the supervisors who received or were scheduled to receive the training at each of the stations. The demographic information section was completed only at the first administration of this questionnaire.

2. Supervisory Organization Survey (SUPQ)

This questionnaire also consists of three parts: demographics; supervisors' perception of organizational climate, satisfaction, and commitment; and knowledge of problem solving/organizational support. The supervisors who received or were scheduled to receive the training completed all portions of this questionnaire at each administration, except for the demographics section, which was completed only for the first administration.

3. Multiple Choice Questionnaire (MCQ)

This questionnaire was completed at each administration by each of the supervisors who received or were scheduled to receive the training. It was designed to measure understanding of problem solving skills (categorical and episodic).

#### 4. Supervisory Evaluation of Training (SETQ)

This questionnaire was completed by supervisors on the administration following completion of the training. It was designed to measure the supervisors' reaction to the training program and their motivation as determined by intrinsic factors (e.g. recognize the positive natural consequences of using the problem solving skills) and extrinsic factors (e.g. organization support).

Copies of all four of these instruments are included as Appendix A. Each of these questionnaires uses codes to identify the subordinates and supervisors within the data base for cross-referencing or comparing results based on subordinate or supervisor responses on each variable, while maintaining the anonymity of the participants. The coding of the questionnaires is explained in the introduction to the appendix.

#### C. SAMPLE

The data collected from these four measurement instruments was based on a combined sample (N = 111) of subordinates and a combined sample (N = 38) of supervisors who received the training at the four stations. (The subordinate sample size refers to the number of questionnaires filled out at each administration by subordinates; there were actually a total of 52 subordinates, some of whom completed questionnaires for more than one supervisor.) A

portion of the supervisors who received the training and completed the Supervisory Organization Surveys were also considered to be subordinates and filled out the Subordinate Organization Surveys as well. These dual-role cases were not identified in the data base and could not be distinguished. This could be a source of contamination of the results noted in this study and will be discussed further in chapter four. Table I shows the breakdown of supervisors and subordinates for each unit.

Table I  
Sample Sizes by Unit and Category

<u>Unit</u>	<u>Category</u>	
	<u>Subordinates</u>	<u>Supervisors</u>
E300	035	011
E500	021	007
C400	028	011
C600	027	009
Total	111	038

Note: E identifies the Early Treatment Group and C identifies the Late Treatment Group.

Although the stations selected by the Coast Guard Project Manager/Trainer were matched in pairs as closely as possible for size and organization profile, this thesis will not analyze the data obtained in terms of "matched" pairs of units. If matching was to be used as an attempt to

compensate for the differences between non-equivalent control groups when random assignment to experimental and control conditions is not possible, it may not only fail to provide the desired equivalence, but in certain circumstances may actually assure the presence of unwanted regression effects [Ref. 3]. The data samples will therefore be aggregated and compared as early treatment vs. late treatment groups.

#### D. PROCEDURE

A number of hypotheses regarding change as a result of the training will be examined to determine the effectiveness of this training program. Effectiveness can be evaluated in terms of reaction, learning, behavioral and/or results criteria [Ref. 4]. Each is used to examine different aspects of the program. Reaction criteria measure how well the participants liked the program. People are more likely to obtain maximum benefit from a program they enjoy. Reaction, then, provides one means of identifying reasons for the success or failure of a training program. Learning refers to the knowledge and skills absorbed by the participants. Behavior is the transfer of the knowledge and skill to actual performance on the job. Results criteria can be cost-related (lower cost, increased efficiency) or behavioral (reduced absenteeism, attrition, disciplinary involvements) measures, which give evidence of the training's impact on organizational effectiveness. Because of many complicating

factors, however, it is very difficult to evaluate in terms of results [Ref. 4].

# 1. Approach

This thesis will examine the effectiveness of the training program primarily in terms of learning and behavior.

## a. Learning

Learning will be analyzed in terms of the results of the Multiple-Choice Questionnaire (MCQ). Although the Supervisory Organization Survey (third part) also seems to measure participant knowledge, it appears to be somewhat redundant to the MCQ and will not be examined in this analysis. The data base was recoded so that the desired answer received a value of one and all other answers a value of zero. A score for each participant was then computed as a percentage correct of the questions answered.

## b. Behavior

Behavior will be analyzed in terms of the results of the Subordinate Organization Survey (SUBQ), Part III. To determine if any of the fifty variables (questions) could be combined and scaled in order to reduce the number of data comparisons required, the data from the first administration of SUBQ Part III was subjected to factor analysis using principal factoring with iteration and varimax (orthogonal) rotation. Nine factors were identified. Using the Scree Test [Ref. 5: pp. 152-156], a plot of Eigenvalue



vs. factor number (see Figure 2.2), it was determined that two factors were the primary contributors. The first two factors accounted for most (77.3%) of the variance in that data set. Therefore, a second factor analysis was made with only two factors extracted. The factor loadings from the varimax rotated factor matrix were used to assign each variable to one of the two factors based on the weight of the factor for that variable. In reviewing the questions that loaded on each factor, it appears that the first factor relates to "problem solving support" (where a high rating indicates more support) and that the second factor relates to "passing the buck" with regard to problem solving (where a low rating indicates less "passing the buck"). Table II provides a listing of the variables assigned to the first factor, the corresponding questionnaire question and the appropriate factor loading, in descending order of factor loading. Table III provides the same information for the second factor.

The values of the variables included in each factor were then combined into an average value for each subordinate, so that only two variables would have to be examined to describe behavior. A listing of the means and standard deviations of each variable and the correlation matrix for the input variables are included in Appendix B.

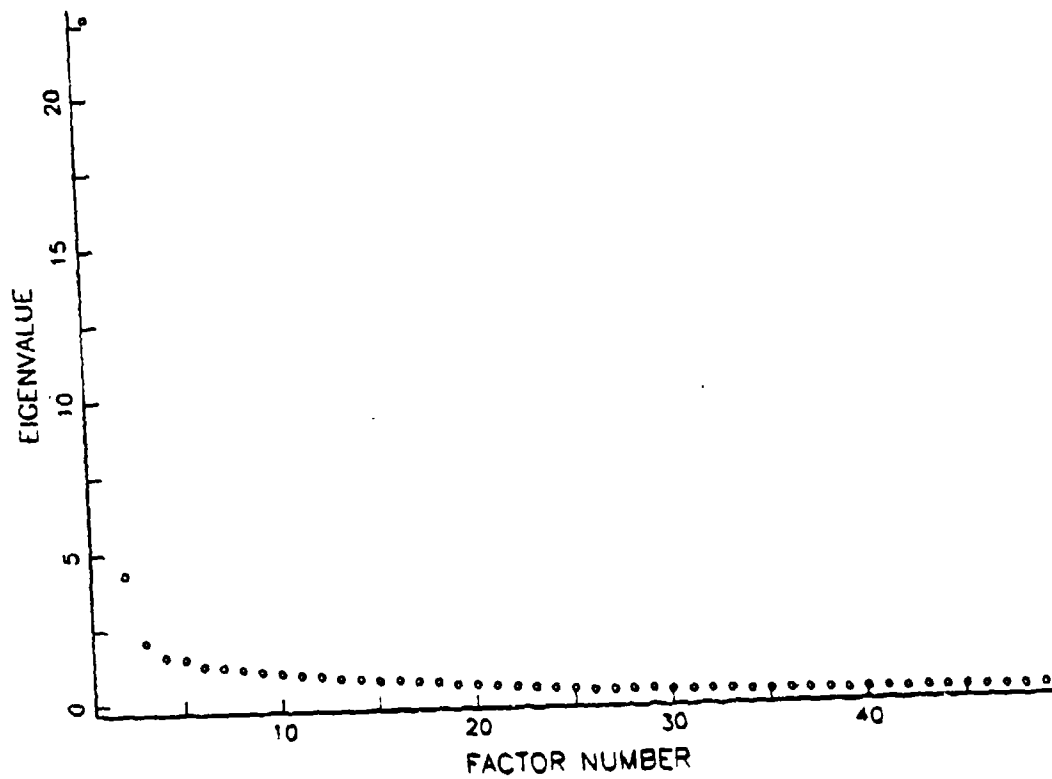


Figure 2.2 Scree Test for SUBQ Part III Administration 1

Table II

## SUBQ Part III Factor One--Problem Solving Support

<u>Variable</u>	<u>Question</u>	<u>Factor Loading</u>
SUBQ1090	Does your supervisor take action in a timely way to solve complaints you bring to his or her attention?	.81498
SUBQ117A	Does your supervisor try to find ways to make the job easier in the future?	.78898
SUBQ109J	Is your supervisor supportive in solving work related problems you want help with?	.78832
SUBQ109K	Does your supervisor bring resources to bear to help you solve problems on the job?	.78726
SUBQ114B	To what extent does your supervisor explain how correcting a problem affects the job?	.77771
SUBQ109N	Is your supervisor quick to follow through on problems you bring to his or her attention?	.76761
SUBQ109A	Does your supervisor keep up-to-date with the problems you are experiencing on the job?	.76639
SUBQ117B	Is your supervisor concerned about making the job less difficult the next time you have to do it?	.76197
SUBQ118C	Can you be sure that your supervisor will really follow up to see that the problem is solved?	.75299
SUBQ110B	To what extent is your supervisor clear about the facts of problems?	.74615

SUBQ114A	When discussing a problem, to what extent does your supervisor clearly explain what would go wrong with the job if the problem weren't corrected?	.74586
SUBQ109C	Does your supervisor take time to ask you whether there are ways he or she can help make your job easier?	.74553
SUBQ109B	Does your supervisor take time discussing your point of view on your work?	.73757
SUBQ118D	Are you able to trust that your supervisor will do what the two of you have agreed needs to be done?	.73488
SUBQ112C	Accurately summarize your feelings on the matter?	.72400
SUBQ109D	Does your supervisor come to your work area to ask you whether you need any help to make your job easier?	.69524
SUBQ116B	To what extent does your supervisor show respect for your ideas and abilities on the job?	.68101
SUBQ116A	To what extent does your supervisor treat you in a way that shows he or she values your experience and opinions on the job?	.68007
SUBQ112B	Demonstrate by restating that he or she fully understands the point you are trying to make?	.64727
SUBQ112D	Carefully listen without arguing or becoming upset?	.64726
SUBQ119D	When dealing with an upset subordinate, to what extent does your supervisor ask the person what is bothering him or her?	.64267
SUBQ119C	When dealing with an upset subordinate, to what extent does your supervisor ask what has made the person upset or angry?	.63689

SUBQ120B	When you have done a good job, to what extent does your supervisor express his or her appreciation for what you have done?	.61350
SUBQ110A	When your supervisor brings up a problem, to what extent is he or she clear about exactly what is bothering him or her?	.57595
SUBQ112A	Listen to your point of view without interrupting or cutting you off?	.54005

Table III

SUBQ Part III Factor Two--Passing the Buck

<u>Variable</u>	<u>Question</u>	<u>Factor Loading</u>
SUBQ113B	To what extent does your supervisor "shoot from the hip" when solving problems instead of stopping to learn about the problem first?	.73719
SUBQ113C	To what extent does your supervisor blame you for problems that aren't your fault?	.73368
SUBQ111B	To what extent does your supervisor draw conclusions about you as a person when discussing problems?	.72942
SUBQ111A	To what extent does your supervisor put you down when describing problems?	.72151
SUBQ115B	When answering questions about why something must be done a certain way, to what extent does your supervisor threaten you with what might happen if you don't do what he or she wants?	.69534
SUBQ109G	Does your supervisor give you excuses for not solving that show you he or she won't "go to bat" for you?	.68467

SUBQ109M	Does your supervisor promise to see what can be done about a problem but then never let you know what he or she did to solve it?	.66854
SUBQ113A	To what extent does your supervisor impose a solution to a problem without first stopping to figure out what is going on?	.66449
SUBQ113D	When discussing a problem with you, to what extent does your supervisor assume you're the cause of the problem when you're not?	.66365
SUBQ121A	Does your supervisor act in ways that make it hard to trust him or her?	.65113
SUBQ121B	Does your supervisor tell you whatever he or she thinks you want to hear in order to get you to do what he or she wants?	.63465
SUBQ119A	When dealing with an upset subordinate, to what extent does your supervisor get angry at him or herself?	.62128
SUBQ115C	When answering questions about why something must be done a certain way, to what extent does your supervisor use his or her "stripes" as your supervisor to get you to do what he or she wants?	.61915
SUBQ109P	Does your supervisor get on your case too much about little things that are not worth the time they'd take to fix?	.59848
SUBQ118B	Is it left unclear as to who will do what to solve the problem?	.59216
SUBQ120A	When you have done well on the job, to what extent does your supervisor express his or her appreciation for what you have done?	.56787
SUBQ119B	When dealing with an upset subordinate, to what extent does your supervisor get into an argument?	.56011

SUBQ115A	When answering questions about why something must be done a certain way, to what extent does your supervisor order you to do it the way he or she wants?	.55227
SUBQ118A	Does your supervisor leave you guessing about what should happen next?	.55187
SUBQ109L	Does your supervisor say he or she will take action on a problem but then never get back to you to solve it?	.55185
SUBQ109I	Does your supervisor refuse to take on the people in power in order to remove complaints in your department?	.53738
SUBQ109F	Does your supervisor fail to deal with problems before they become severe?	.52699
SUBQ109H	Is your supervisor unwilling to argue or fight for you to solve problems you bring up?	.45610
SUBQ109E	Does a problem have to get out of hand before your supervisor chooses to deal with it?	.45293

### c. Results

One method of examining the impact on organizational effectiveness is to measure the subjects<sup>2</sup> views on organizational climate, satisfaction and commitment and see if they change after training. The Subordinate Organization Survey Part II and the Supervisory Organization Survey Part II ask questions in these categories (see Appendix A) which are similar to some of the questions in the related sections

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<sup>2</sup>"Subjects" as used here refers to both supervisors and subordinates who were measured on these factors.

of the Michigan Survey of Organizations [Ref. 6]. Again, in an effort to determine the possibility of simplifying the data base, the variables in SUBQ Part II Administration 1 were subject to factor analysis using principal factoring with iteration and varimax (orthogonal) rotation. The results indicated that the questions relating to organizational climate could be considered as a single factor. For satisfaction, SUBQ107E (satisfaction with pay) was not related to the other variables, so it was not included in the scale for satisfaction (the other items accounted for 78.7 percent of the variance). For commitment, the results indicated that the three questions could be considered one factor. Although the scree test was inconclusive, Guttman's procedure [Ref. 5: p. 147] for estimating the lower bound for the number of factors suggests using the factors with eigenvalues greater than or equal to 1.0, leading to the selection of one factor for commitment. The scree test plots are shown in Figure 2.3, Figure 2.4 and Figure 2.5. A listing of the eigenvalues, means and standard deviations of each variable and the correlation matrix for the input variables are included in Appendix C. These factors were applied for each administration of both SUBQ Part II and SUPQ Part II. The values of the variables included in each factor were then combined into an average value for each respondent so that only three variables would have to be examined to describe "Results."



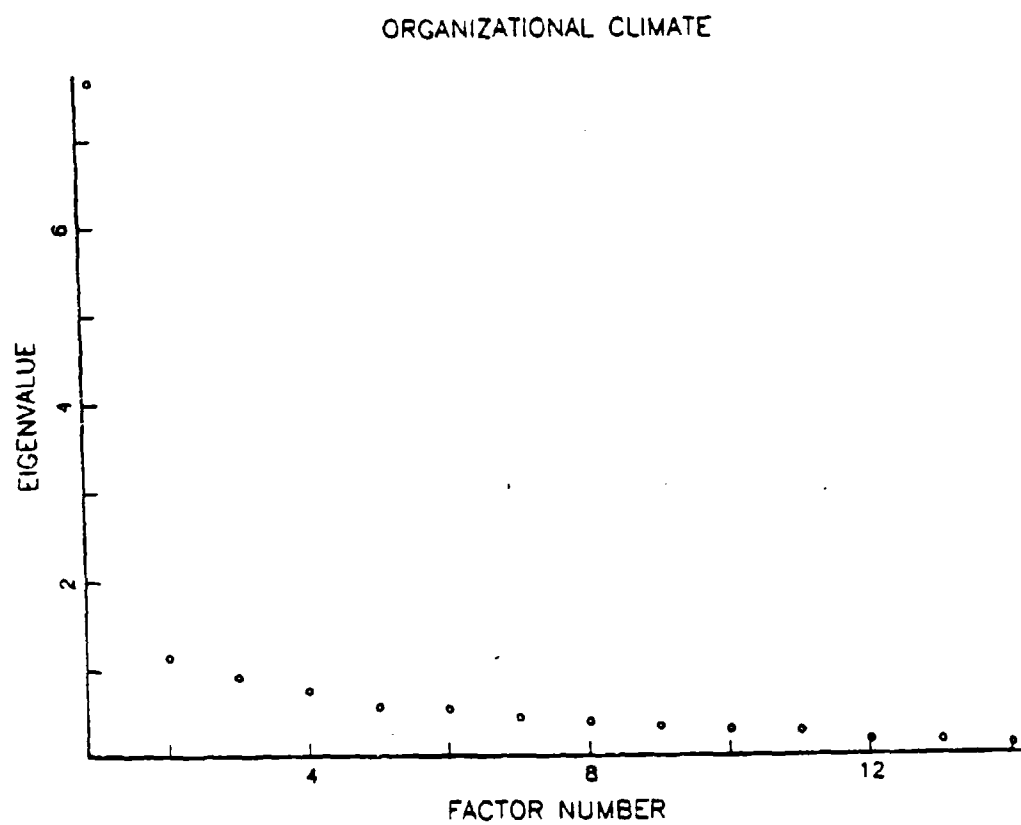


Figure 2.3 Scree Test for Organizational Climate

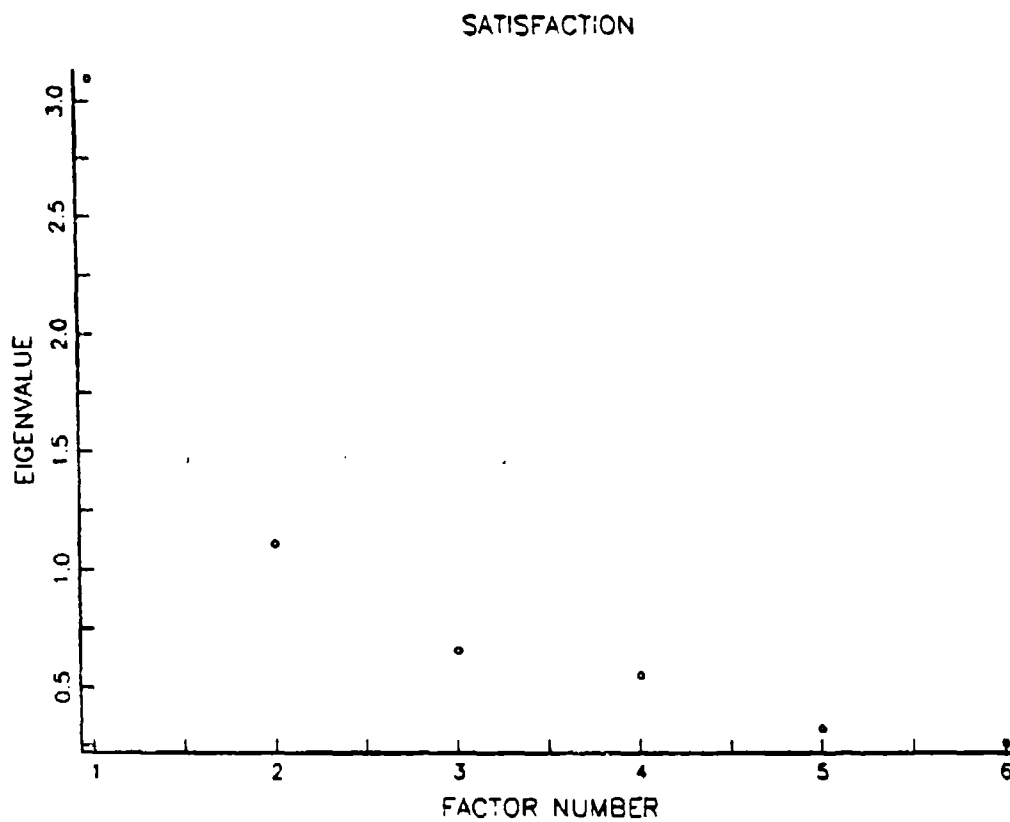


Figure 2.4 Scree Test for Satisfaction

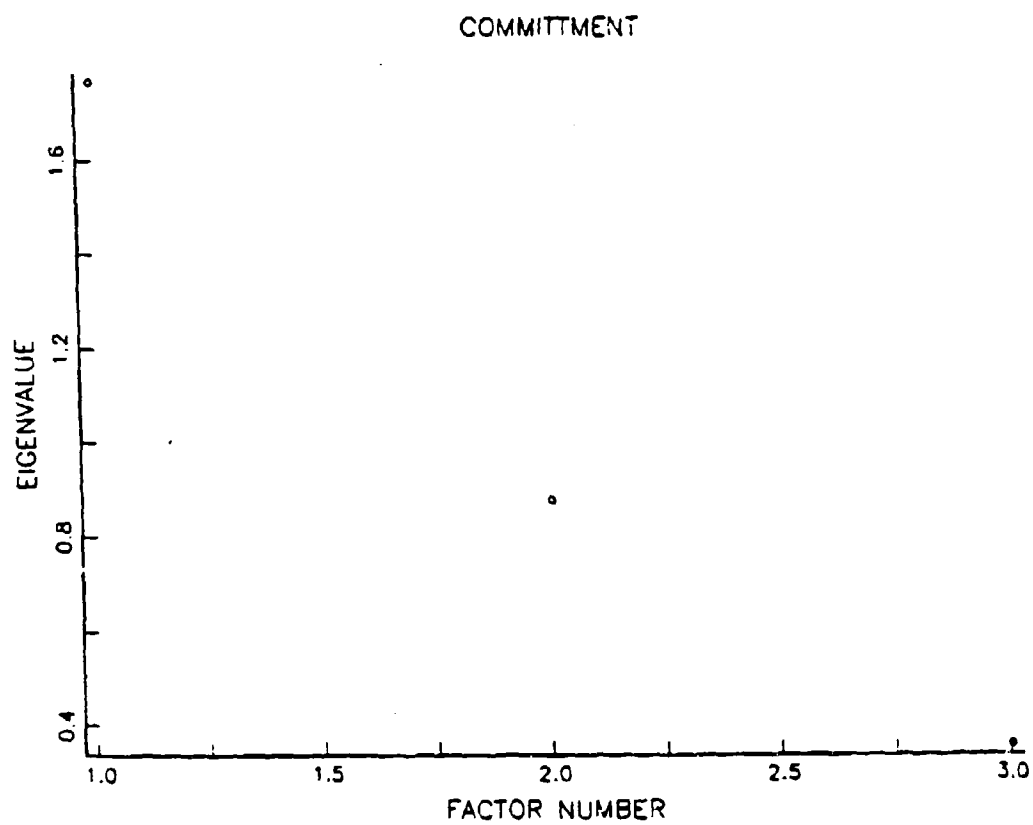


Figure 2.5 Scree Test for Commitment

## 2. Hypotheses to be Tested

Figure 2.6 shows the relationships to be examined. In each case, the null hypothesis ( $H_0$ ) is that there is "no change." Each hypothesis will be described in detail below.

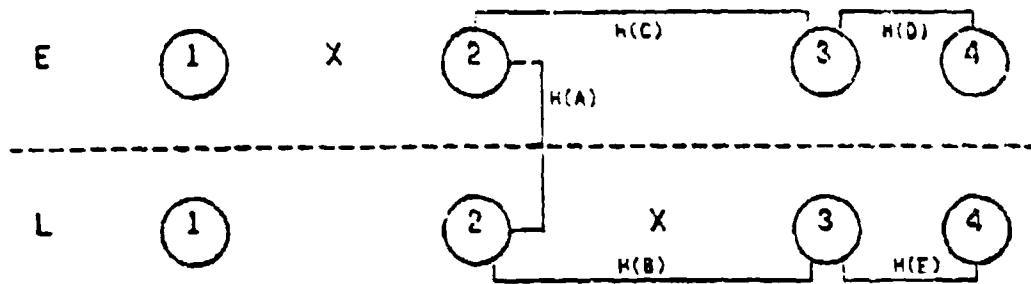


Figure 2.6 Hypotheses to be Tested

### a. Hypothesis A

This analysis tests for the effect of training on the "early treatment group," the first set of stations to receive the training (see Figure 2.7).

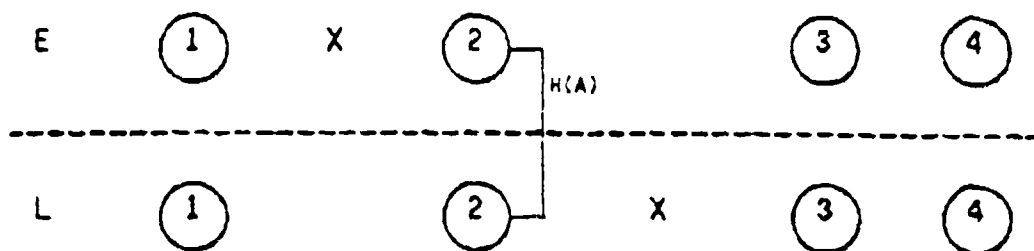


Figure 2.7 Hypothesis A

Since the early and late treatment groups are non-equivalent, not randomly assigned, the difference in ratings on the various measures could be due to a regression effect. A

comparison of simple difference scores may therefore be misleading. What is needed is to compare the results actually attained with the results that would have been attained under the appropriate null hypothesis of no treatment effect [Ref. 7: p. 25]. To account for this, a method of estimating the no-treatment result for the experimental (early treatment) group will be used. The results of the late treatment group's second administration of the questionnaire of interest will be regressed on the results of the late treatment group's first administration, producing a constant and an unstandardized regression coefficient. These values will be applied to the actual results of the first administration for both the early and late treatment groups to obtain a predicted value for the second administration. These predicted values will then be subtracted from the actual values to obtain the difference or residual values. These residual values will then be compared between the late and early treatment groups by means of a  $t$ -test.

Hypothesis A can be broken down into analyses between the late and early treatment groups for SUBQ Part III Factor One, SUBQ Part III Factor Two, SUBQ Part II Factor One, SUBQ Part II Factor Two, SUBQ Part II Factor Three, SUPQ Part II Factor One, SUPQ Part II Factor Two, and SUPQ Part II Factor Three. These comparisons and the statistical techniques used are summarized in Table IV.

TABLE IV  
Sub-Hypotheses for H(A)

Null Hypothesis:	No change between "early" and "late" groups for:	Method of Analysis
H (A1)	Subordinate perception of Supervisor "Problem Solving Support".	STEP 1: Regression of "late" group admin 2 on admin 1;
H (A2)	Subordinate Perception of Supervisor "Passing the Buck".	STEP 2: Prediction of values of admin 2 from values of admin 1 for both "late" and "early" groups;
H (A3)	Multiple-choice Questionnaire Score	
H (A4)	Subordinate Perception of Organization climate.	
H (A5)	Subordinate Satisfaction	Computation of Residuals;
H (A6)	Subordinate Commitment	STEP 3: t-test between "early" group residuals and "late" group residuals.
H (A7)	Supervisory Perception of Organization climate.	
H (A8)	Supervisor Satisfaction	
H (A9)	Supervisor Commitment	

b. Hypothesis B

This analysis tests for the effect of training on the "late treatment group," the second set of stations to receive the training (see Figure 2.8).

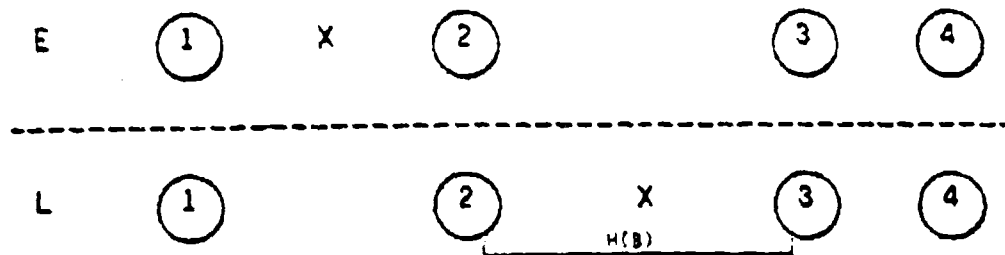


Figure 2.8 Hypothesis B

In this situation, the regression effect is assumed to have taken place between the first and second administration [Ref. 8]. Hypothesis B can be broken down into analyses of the same variables as Hypothesis A, but comparing between administration 2 and administration 3 for the "late treatment group." These comparisons are summarized in Table V.

c. Hypothesis C

This analysis tests for the longitudinal effect of training for the "early treatment groups," between the first two administrations after training (administration 2 and administration 3), as shown in Figure 2.9.

**TABLE V**  
**Sub-Hypotheses for H(B)**

Null Hypothesis:	No change between administrations 2 and 3 of "late" group for:	Method of Analysis
H (B1)	Subordinate perception of Supervisor "Problem Solving Support".	T-Test: Comparison of actual ratings means between Admin. 2 and Admin. 3 for the "Late" treatment groups.
H (B2)	Subordinate Perception of Supervisor "Passing the Buck".	
H (B3)	Multiple-choice Questionnaire score	
H (B4)	Subordinate Perception of Organization climate.	
H (B5)	Subordinate Satisfaction	
H (B6)	Subordinate Commitment	
H (B7)	Supervisory Perception of Organization climate.	
H (B8)	Supervisor Satisfaction	
H (B9)	Supervisor Commitment	



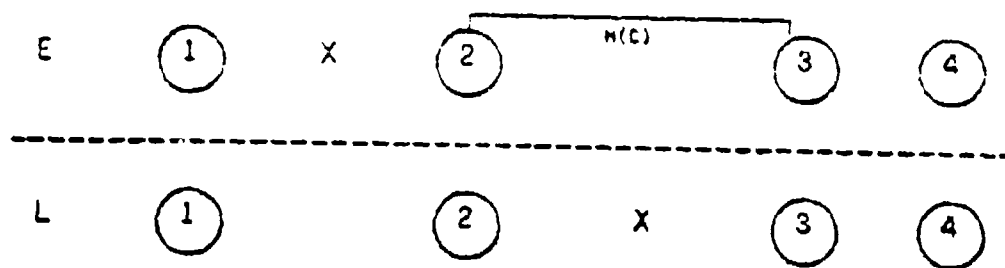


Figure 2.9 Hypothesis C

This analysis also assumes that the regression effect has taken place between the first and second administrations. Hypothesis C can be broken down into analyses of the same variables as Hypothesis B; these comparisons are summarized in Table VI.

d. Hypothesis D

This analysis tests for the longitudinal effect of training for the "early treatment groups," between the last two administrations after training (administration 3 and administration 4), as shown in Figure 2.10.

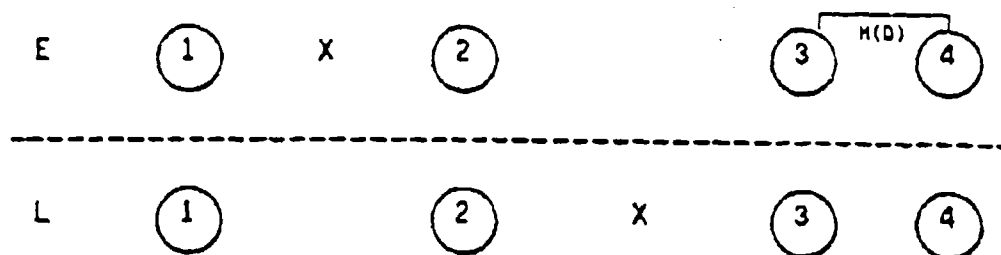


Figure 2.10 Hypothesis D

**TABLE VI**  
**Sub-Hypotheses for H(C)**

Null Hypothesis:	No change between administrations 2 and 3 ("early" group) for:	Method of Analysis
H (C1)	Subordinate perception of Supervisor "Problem Solving Support".	
H (C2)	Subordinate Perception of Supervisor "Passing the Buck".	
H (C3)	Multiple-choice Questionnaire Score	T-Test: Comparison of actual ratings' means between Admin. 2 and Admin. 3 for the "early" treatment groups.
H (C4)	Subordinate Perception of Organization climate.	
H (C5)	Subordinate Satisfaction	
H (C6)	Subordinate Commitment	
H (C7)	Supervisory Perception of Organization climate.	
H (C8)	Supervisor Satisfaction	
H (C9)	Supervisor Commitment	

This analysis also assumes that the regression effect has already taken place. Hypothesis D can be broken down into analyses of the same variables as Hypothesis C; these comparisons are summarized in Table VII.

e. Hypothesis E

This analysis tests for the longitudinal effect of training for the "late treatment groups," between the last two administrations after training (administration 3 and administration 4), as shown in Figure 2.11.

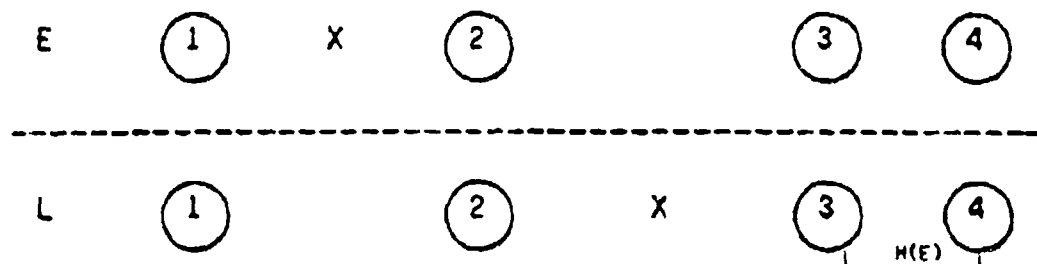


Figure 2.11 Hypothesis E

This analysis also assumes that the regression effect has already taken place. Hypothesis E can be broken down into analyses of the same variables as Hypothesis D; these comparisons are summarized in Table VIII.

**TABLE VII**  
**Sub-Hypotheses for H(D)**

Null Hypothesis:	No change between administrations 3 and 4 ("early" group) for:	Method of Analysis
H (D1)	Subordinate perception of Supervisor "problem Solving Support".	
H (D2)	Subordinate Perception of Supervisor "Passing the Buck".	
H (D3)	Multiple-choice Questionnaire Score	T-Test: Comparison of actual ratings between Admin. 3 and Admin. 4 for the "early" treatment groups.
H (D4)	Subordinate Perception of Organization climate.	
H (D5)	Subordinate Satisfaction	
H (D6)	Subordinate Commitment	
H (D7)	Supervisory Perception of Organization climate.	
H (D8)	Supervisor Satisfaction	
H (D9)	Commitment	

TABLE VIII  
Sub-Hypotheses for H(E)

Null Hypothesis:	No change between administrations 3 and 4 ("late" group) for:	Method of Analysis
H (E1)	Subordinate perception of Supervisor "Problem Solving Support".	
H (E2)	Subordinate Perception of Supervisor "Passing the Buck".	
H (E3)	Multiple-choice Questionnaire score	T-Test: Comparison of actual ratings' means between Admin. 3 and Admin. 4 for "late" treatment groups.
H (E4)	Subordinate perception of Organization climate.	
H (E5)	Subordinate Satisfaction	
H (E6)	Subordinate Commitment	
H (E7)	Supervisory perception of Organization climate.	
H (E8)	Supervisor Satisfaction	
H (E9)	Supervisor Commitment	

### III. RESULTS

#### A. REGRESSION RESULTS

The study of the effect of the training on the early treatment groups was based on a comparison of the residuals developed from the regression analysis procedure discussed in chapter two. The regression analysis provided the values for the coefficient "b" (slope) and the constant "a" (intercept) in the regression equation for each sub-hypothesis described in chapter two. In addition, analysis of variance provides an "F-ratio" which describes the strength of any linear relationship between administration one and administration two for the sub-hypotheses of interest (for the early treatment groups). Table IX provides a summary of these values. The null hypothesis is that the slope = 0, that there is no relationship. A statistically significant relationship justifies using the regression procedure. Except for "subordinate perception of supervisor 'passing the buck'" and "Multiple-Choice Questionnaire Score," a significant linear relationship is shown for each sub-hypothesis. For the non-significant items, a t-test can be used to determine if any differences exist between the early and late treatment groups' actual ratings on these items.

TABLE IX  
Regression Analysis Results

Subhypothesis Description	a	b	F	Sig.	d.f.
(1) Subordinate perception of Supervisor Problem Solving Support	3.18555	0.34725	20.97223	0.0000	47
(2) Subordinate Perception of Supervisor "Passing the Buck"	2.16518	0.18587	2.34147	0.1328*	47
(3) Multiple-choice Questionnaire score	0.42763	-.08765	0.02297	0.8813*	18
(4) Subordinate Perception of Organizational Climate	2.96228	0.37001	14.87013	0.0004	46
(5) Subordinate Satisfaction	2.67789	0.45938	25.05735	0.0000	46
(6) Subordinate Commitment	2.59994	0.37023	25.77239	0.0000	46
(7) Supervisor Perception of Organizational Climate	1.94745	0.52475	9.92446	0.0058	18
(8) Supervisor Satisfaction	1.46914	0.69846	14.97123	0.0012	18
(9) Supervisor Commitment	1.11517	0.74594	27.53915	0.0001	18

Note: "a" and "b" refer to the intercept and slope in the regression equation. "F" refers to the F-ratio and "Sig." refers to the significance of F. "d.f." refers to degrees of freedom.

\* indicates the only items not significant below the .006 level

## B. HYPOTHESIS A

The first hypothesis examined was the null hypothesis of no training effect on the early treatment group, as determined by a t-test between the residuals of the ratings for the early treatment group and the late treatment group at administration two. See Figure 3.1.

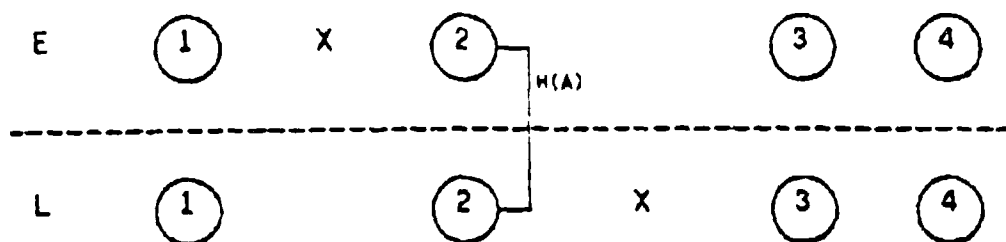


Figure 3.1 Hypothesis A

The results of these tests are shown in Table X. The column labeled "means" refers to the mean value of the differences between the actual and predicted scores (difference, or residual, equals the actual score minus its predicted score). This difference is negative if the actual score is less than the predicted score. When this happens for the group that received the training, it indicates that the training has caused a reduction in the score used in the test of the sub-hypothesis. If the difference is positive, it indicates that the training has caused an increase in the score. For those items showing a significant linear relationship for the late treatment group between administration one and



TABLE X  
Residuals T-Test Results

Null Hypothesis: No change between "early" and "late" groups for:		Means: Early Late	T- Value	d.f.	2-tail Prob.
H (A1)	Subordinate perception of Supervisor 'Problem Solving Support'	-0.2452 0.0000	-1.62	92	.110
H (A2)	Subordinate Perception of Supervisor "passing the Buck"	-0.0562 0.0000	-0.29	92	.769
H (A3)	Multiple-choice Questionnaire score	0.1949 0.0000	2.73	35	.010*
H (A4)	Subordinate Perception of Organizational Climate	-0.3527 0.0000	-2.32	91	.022*
H (A5)	Subordinate Satisfaction	-0.3381 0.0000	-2.27	91	.025*
H (A6)	Subordinate Commitment	-0.3228 0.0000	-1.88	68.45	.064*
H (A7)	Supervisor Perception of Organizational Climate	0.1102 0.0000	0.44	35	.666
H (A8)	Supervisor Satisfaction	0.2811 0.0000	1.08	35	.289
H (A9)	Supervisor Commitment	-0.2248 0.0000	-0.84	35.90	.407

Note: "d.f." refers to degrees of freedom. T-Value refers to the student t-statistic.  
\* identifies the most significant items.

administration two, as discussed in the previous section, a comparison of the difference, or residual, means between the early and late treatment groups provides a measure of the significance of any changes noted. Table X shows the results of these comparisons. For those items not showing a significant linear relationship for the late treatment group between administration one and administration two, a comparison of the actual scores (for example, using a t-test) is appropriate. Table XI provides the t-test results for these items, as well as t-test results for the other sub-hypotheses for comparison with the regression results.

As shown in Table X, sub-hypotheses 3, 4, 5 and 6 indicate significance at least at the .065 level. Multiple-Choice Questionnaire Scores are above the predicted scores for the early treatment group, indicating that training had a positive impact on supervisors' knowledge of the problem solving process. (As would be expected, because the linear relationship between administration one and administration two for the late treatment groups' Multiple-Choice Questionnaire Scores was not significant, the t-test on the actual scores provided similar results. See Table XI.) Subordinate perception of organizational climate, satisfaction and commitment all show a significant decrease for the early treatment group ( $p \geq .065$ ), indicating that the training had a negative impact on these ratings.

TABLE XI  
Actual-Score T-test Results

Null Hypothesis: No change between "early" and "late" groups for administration 2		Means: Early Late	T- Value	d.f.	2-tail Prob.
H (A1)	Subordinate per- ception of Super- visor "Problem Solving Support"	4.5030 4.7832	-1.58	92	.118
H (A2)	Subordinate Per- ception of Super- visor "Passing the Buck"	2.6833 2.7324	-0.23	92	.822
H (A3)	Multiple-choice Questionnaire score	0.5920 0.3999	2.72	35	.010*
H (A4)	Subordinate Per- ception of Organizational Climate	4.0373 4.4747	-2.47	92	.015*
H (A5)	Subordinate Satisfaction	4.3446 4.9125	-3.26	88.40	.002*
H (A6)	Subordinate Commitment	3.5435 3.9653	-2.41	80.19	.018*
H (A7)	Supervisor Per- ception of Organizational Climate	4.1642 4.0827	0.26	35	.797
H (A8)	Supervisor Satisfaction	4.8778 4.6526	0.81	27.71	.426
H (A9)	Supervisor Commitment	3.7222 4.5439	-2.39	35	.022*

Note: "d.f." refers to degrees of freedom. T-Value  
refers to the student t-statistic.  
\* identifies the most significant items.

### C. HYPOTHESIS B

The second hypothesis examined is the null hypothesis of no treatment effect on the late treatment group, as determined by a t-test on the ratings between administration two (immediately before the training) and administration three (immediately after the training). See Figure 3.2.

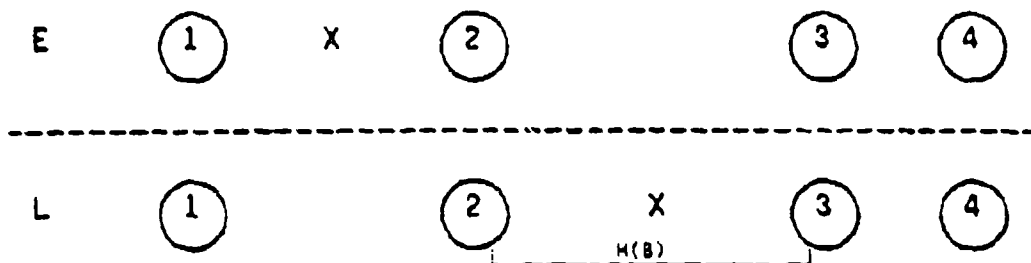


Figure 3.2 Hypothesis B

The results of these tests are shown in Table XII. In this and the remaining tables, "means" refers to the means of the actual scores or ratings. Most of the means show the appropriate trends, but none except Multiple-Choice Questionnaire Score are significant below the .124 level. Multiple-Choice Questionnaire Score is the most significant ( $p \geq .087$ ).

### D. HYPOTHESIS C

The third hypothesis examined is the null hypothesis of no longitudinal change in the ratings for the early treatment group for the two administrations immediately following training (administrations two and three). See Figure 3.3.

Table XII  
T-Test Results for Sub-Hypotheses of H(B)

Null Hypothesis: No change between administration 2 and administra- tion 3 for the "late" groups		Means: Admin 2 ----- Admin 3	T- Value	d.f.	2-tail Prob.
H (B1)	Subordinate per- ception of Super- visor's Problem Solving Support	4.7491 5.0010	-1.55	102	.124
H (B2)	Subordinate Per- ception of Super- visor "passing the Buck"	2.7811 2.5942	0.90	102	.369
H (B3)	Multiple-choice Questionnaire score	39.9926 52.7415	-1.76	36	.087*
H (B4)	Subordinate Per- ception of Super- Organizational Climate	4.4533 4.4203	0.19	102	.846
H (B5)	Subordinate Satisfaction	4.8731 4.9654	-0.56	96.95	.577
H (B6)	Subordinate Commitment	3.9551 3.9487	0.04	92.35	.968
H (B7)	Supervisor Per- ception of Super- Organizational Climate	4.0827 4.2770	-0.56	36	.579
H (B8)	Supervisor Satisfaction	4.6526 4.6525	0.0	36	1.00
H (B9)	Supervisor Commitment	4.5439 4.4551	0.27	36	.792

Note: "d.f." refers to degrees of freedom. T-Value  
refers to the student t-statistic.  
\* identifies the most significant items.

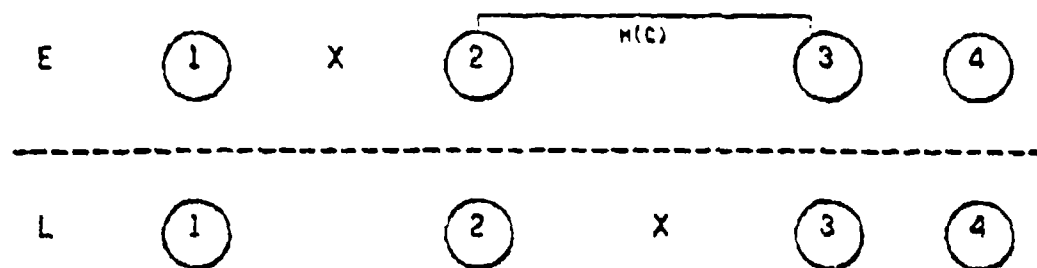


Figure 3.3 Hypothesis C

This analysis determined whether the after-training scores either declined or increased over time, and the significance of any differences. The results of this analysis are shown in Table XIII. The most significant difference is for sub-hypothesis six, subordinate commitment, which has increased from administration two to administration three ( $p \geq .172$ ).

#### E. HYPOTHESIS D

The fourth hypothesis examined is the null hypothesis of no longitudinal change in the after-training ratings for the early treatment group for administrations three and four. See Figure 3.4.

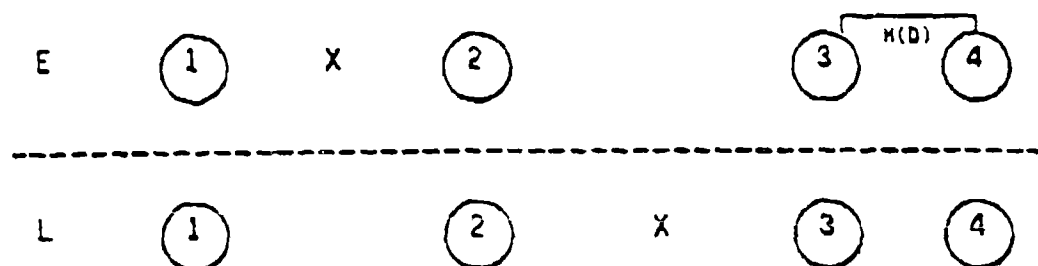


Figure 3.4 Hypothesis D

Table XIII  
T-Test Results for Sub-Hypotheses of H(C)

Null Hypothesis: No change between administrations 2 and 3 for the "early" groups		Means: Admin 2 3	T- Value	d.f.	2-tail Prob.
H (C1)	Subordinate per- ception of Super- vision 'problem' Solving Support'	4.4302 4.5693	-.54	99	.592
H (C2)	Subordinate Per- ception of Super- vision "passing the Buck"	2.7042 2.7117	-.04	92.68	.970
H (C3)	Multiple-choice Questionnaire score	59.2023 58.8235	0.05	33	.958
H (C4)	Subordinate Per- ception of Organizational Climate	4.0518 3.9099	1.00	99	.320
H (C5)	Subordinate Satisfaction	4.3539 4.4950	-0.90	99	.372
H (C6)	Subordinate Commitment	3.4379 3.7200	-1.38	99	.172*
H (C7)	Supervisor Per- ception of Organizational Climate	4.1642 3.9646	0.65	29.01	.520
H (C8)	Supervisor Satisfaction	4.8798 4.6557	0.71	20.89	.485
H (C9)	Supervisor Commitment	3.7222 3.7778	-.16	31	.875

Note: "d.f." refers to degrees of freedom. T-Value refers to the student t-statistic.  
\* identifies the most significant items.

This analysis determined whether the after-training scores either declined or increased over time, and the significance of any differences. The results of this analysis are shown in Table XIV. The most significant result ( $p \geq .211$ ) is for sub-hypothesis nine, supervisor commitment, which increased from administration three to administration four.

#### F. HYPOTHESIS E

The fifth hypothesis examined is the null hypothesis of no longitudinal change in the ratings for the late treatment group between the last two administrations following the training (administrations three and four). See Figure 3.5.

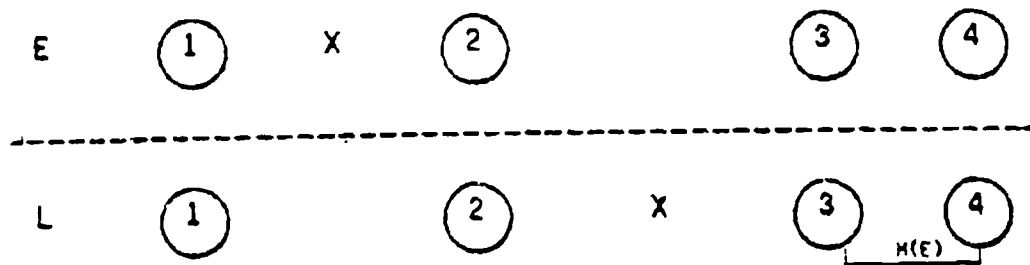


Figure 3.5 Hypothesis E

This analysis used the same methodology as used for Hypothesis D. The results are shown in Table XV. The most significant result is for sub-hypothesis six, subordinate commitment ( $p \geq .113$ ), which has increased from administration three to administration four.



Table XIV  
T-Test Results for Sub-Hypotheses of H(D)

Null Hypothesis: No change between administrations 3 and 4 for the "early" groups		Means: Admin 3 ----- 4	T- Value	d.f.	2-tail Prob.
H (D1)	Subordinate per- ception of Super- visor "problem Solving Support"	4.5693 4.5540	0.08	84.26	.937
H (D2)	Subordinate Per- ception of Super- visor "passing the Buck"	2.7117 2.4676	1.09	95	.277
H (D3)	Multiple-choice Questionnaire score	58.8235 55.4701	0.51	33	.613
H (D4)	Subordinate Per- ception of Organizational Climate	3.9039 3.9298	0.53	95	.601
H (D5)	Subordinate Satisfaction	4.4950 4.5511	-.28	95	.783
H (D6)	Subordinate Commitment	3.7200 3.7943	-.34	95	.737
H (D7)	Supervisor Per- ception of Organizational Climate	3.9846 4.1078	-.38	25.91	.708
H (D8)	Supervisor Satisfaction	4.6667 4.7889	-.33	31	.742
H (D9)	Supervisor Commitment	3.7778 4.3148	-1.28	31	.211*

Note: "d.f." refers to degrees of freedom. T-Value refers to the student t-statistic.  
\* identifies the most significant items.

Table XV  
T-Test Results for Sub-Hypotheses of H(E)

Null Hypothesis: No change between administrations 3 and 4 for the "late" groups		Means: Admin 3 ----- 4	T- Value	d.f.	2-tail Prob.
H (E1)	Subordinate per- ception of Super- visor 'Problem Solving Support'	5.0010 4.8142	1.16	101	.248
H (E2)	Subordinate Per- ception of Super- visor "passing the Buck"	2.5942 2.5140	0.37	101	.714
H (E3)	Multiple-choice Questionnaire score	52.7415 49.9325	0.38	36	.708
H (E4)	Subordinate Per- ception of Organizational Climate	4.4203 4.2259	1.11	101	.270
H (E5)	Subordinate Satisfaction	4.9654 4.8627	0.68	101	.496
H (E6)	Subordinate Commitment	3.9487 4.2222	-1.60	101	.113*
H (E7)	Supervisor Per- ception of Organizational Climate	4.2770 4.4135	-.36	36	.718
H (E8)	Supervisor Satisfaction	4.6526 4.9053	-.73	36	.471
H (E9)	Supervisor Commitment	4.4551 4.6657	-.71	36	.484

Note: "d.f." refers to degrees of freedom. T-Value  
refers to the student t-statistic.  
\* identifies the most significant items.

#### IV. DISCUSSION

##### A. INTRODUCTION

As mentioned in chapter two, the first portion of the research design developed for this project is described by Campbell's and Stanley's Design 10 [Ref. 3: pp. 46-50], a quasi-experimental non-equivalent control group design, which they state is one of the most widespread experimental designs in education research. The more the experimental and control groups are similar in their recruitment and the more this similarity is confirmed by scores on a pre-measure, the more effective this design is in controlling for the main effects of history, maturation, testing and instrumentation. One area of concern in this design is that of intrasession history. Since all of the subjects in each of the experimental groups are measured in two separate sessions, and the same for the control groups, the irrelevant unique events in any of these sessions become rival hypotheses for explaining any pre-measure/post-measure differences for the two early treatment groups, the two late treatment groups or between the combined "early" groups and the combined "late" groups. Another major concern affecting internal validity is that of interaction effects of selection and such extraneous factors as history, maturation and testing. In general, these interactions are unlikely, but

must be considered in the analysis. Regression can provide another source of internal validity problems in this design, especially if a matching procedure is used that results in substantially different group means.

## B. INSTRUMENTATION

Four sets of questionnaires were administered during this training program to the supervisors or the subordinates, as appropriate, each attempting to measure some portion of the training effectiveness criteria (learning, behavior, reaction and results) discussed in Chapter Two. Since the main objective of the training program was to change supervisors' behavior to be more effective in dealing with problem-solving situations, the measures of the subordinates' perceptions of supervisors' behavior in using problem-solving skills is of primary interest. The measurement was done with the Subordinate Organization Survey (SUBQ) Part III. To simplify the analysis, this data was subjected to factor analysis and two factors were identified. One of the problems with aggregating data in this manner is the inability to diagnose specific strengths or weaknesses of the training program. Data aggregation is more useful, however, to explain why the overall results have occurred. The primary purpose of this thesis is to determine the overall effectiveness of the training program, so using the aggregated data appears to be appropriate. The factors

identified do seem to make sense and to be combining variables measuring similar properties. The factor analysis was based on data from the first administration for the late treatment group, and the same factors were used for all administrations for each group. The other data sets were used to assess the criteria of learning, reaction and results in order to explain the behavior ratings. Part II of the Subordinate Organization Survey and Supervisory Organization Survey measure some of the results criteria, such as organizational climate, satisfaction and commitment. The variables associated with these items were subject to factor analysis, with the result that one factor for each category was found to be appropriate. The disadvantage of aggregating the data, as noted earlier, is the inability to pinpoint a specific weakness for diagnostic purposes. The Multiple-Choice Questionnaire (MCQ) measured supervisors' knowledge of the problem-solving process and was scored on a right/wrong basis for each question. This researcher completed the questionnaire after reading the descriptive material for the training program, including the trainer's guide, and selected all the answers subsequently identified as correct by the company which developed the training package, providing a measure of face validity for the questionnaire. By measuring the supervisors' learning (change in knowledge) of the problem-solving process after training, one source of behavior differences can be analyzed. The Supervisory Evaluation of Training Questionnaire (SETQ)

provides a measure of supervisor reaction to the training as well as a measure of intrinsic motivation and extrinsic support. Since this questionnaire was given only once (immediately after training) for each group, the only comparisons possible are between the early treatment group at administration two and the late treatment group at administration three. These comparisons could be affected by the fact that the late treatment group completed the survey one month later than the early treatment group.

#### C. SAMPLE

The data comparisons are based on relatively small sample sizes, which affect the generalizability of the results to the population of all Coast Guard supervisors. In addition, the results may be contaminated due to the fact that subordinates usually rated more than one supervisor and that each supervisor was usually rated by more than one subordinate. This could, however, serve to increase the reliability of the overall ratings because of the multiple measurements for each supervisor. The area of greatest concern about contamination is the fact that some of the supervisors who received the training also completed surveys as subordinates. This could tend to bias the results, although the direction of bias is not predictable. The supervisors who are also subordinates and were exposed to the training could be either more critical after training

or more perceptive of the changes in their supervisors' behavior. The validity of this means of measuring supervisors' behavior is somewhat suspect. It is, however, the only measure of behavior available in this analysis.

#### D. REGRESSION PROCEDURE

The regression analysis described in Chapter Three, Table IX, indicates a linear significant relationship ( $p \geq .0060$ ) between administration one and administration two for the late treatment group with respect to all sub-hypotheses of interest except sub-hypothesis two (subordinate perception of supervisors "passing the buck" with regard to problem solving,  $p \geq .1328$ ) and sub-hypothesis three (multiple-choice questionnaire score,  $p \geq .8813$ ). For these sub-hypotheses, application of the regression procedure would not be significantly different from measuring directly the differences in the actual scores between early and late treatment groups. The regression procedure used assumes that the initial means and standard deviations of the early and late treatment groups are the same. If this is not the case, results would be erroneous. A comparison of the actual score means for each sub-hypothesis found that the means and standard deviations did not differ significantly (at  $p \geq .05$ ). Subordinate satisfaction and supervisor commitment showed the most significant differences ( $p \geq .134$  and  $p \geq .100$ , respectively) between the means, and

subordinate satisfaction the most significant difference ( $p \geq .043$ ) between the standard deviations. This will be considered in the discussion of the results of the comparisons of subordinates' satisfaction and of supervisors' commitment ratings.

## E. RESULTS

### 1. Behavior Criteria: Early Treatment Groups

Hypothesis A examined the relationships between the early and late treatment groups after applying the regression procedure in the case of each of the sub-hypotheses of interest. It was found that subordinate perception of supervisors' behavior was not significantly different after training for either of the two factors examined. The most significant factor, "problem solving support" ( $p \geq .110$ ), showed a decrease in the mean score, indicating that immediately after completion of the training subordinates felt that the supervisors' behavior was less effectively applied to problem solving than the behavior of the untrained supervisors. This result could be partially due to the subordinates having higher expectations of their supervisors after completing the 4-week training package, since they were aware that the supervisors were being trained and in fact some of the subordinates were also considered to be supervisors and received the training. The training could have made them more aware of the problem solving process and of



any differences between the ideal and the actual behaviors. This hypothesis can be viewed as a "negative Hawthorne effect," affecting the external validity of the results, as well as resulting in instrumental decay [Ref. 3] (the instrument no longer is measuring behavior with the original criteria), one of the conditions which affects internal validity. Although the results obtained indicate that the training had no significant impact on subordinate perception of supervisors' behavior, there are enough rival hypotheses to investigate as possible explanations of these results that a firm conclusion that the training is not effective is not possible without further study. For example, the validity of using the Subordinate Organization Survey Questionnaire instrument as the measure of supervisor behavior is suspect because of the factors mentioned above. In addition, there could still be differences in long-term behavior ratings, which were examined in Hypotheses C and D. In testing each of these hypotheses, however, there was no significant difference in supervisors' behavior.

Another possible explanation is that the impact of training differed between the early treatment groups. Further data analysis was done comparing the regression-adjusted means at administration two for groups E3 and E5 (see Figure 2.1) that showed a difference for the second factor ("passing the buck,"  $p > 0.010$ ), with the mean for group E3 decreasing (as desired for this factor) but

increasing for group E5. There was no difference for the first factor. A t-test comparing the means of the actual ratings for group E3 between administration one and administration two showed a significant decrease ( $p > 0.006$ ) for this second factor (not adjusted using regression procedure). Based on a comparison of the residuals t-tests and the actual-ratings t-tests of Hypothesis A (Tables XI and XII), it is believed that this strongly significant result would remain significant after the regression-procedure adjustment. There is no significant longitudinal change for group E3 on this second factor for the last two administrations, indicating that the training may have a lasting impact on this factor for group E3. In terms of behavior, this result indicates that the training was effective for one group on one factor, but overall made no difference. This information is useful for diagnostic purposes, but further discussion is beyond the scope of this thesis.

Another possible explanation for the lack of training impact on the early treatment group compared with the late treatment group at administration two could be related to demographic differences. Table XVI shows the mode for each of the categories of subordinate demographic data collected on the Subordinate Organization Survey Questionnaire (SUBQ, Part I) and for the supervisors, collected on the Supervisory Organization Survey Questionnaire (SUPQ,

Part I). A t-test comparing the means of the early and late treatment groups for each of these categories showed no significant differences.

TABLE XVI  
Demographic Data

	Mode for Subordinates		Mode for Supervisors	
	"Early" groups	"Late" Groups	"Early" Groups	"Late" Groups
Age	20-24	20-24	20-24	20-24/ 25-29*
Sex (percent male)	80.4%	77.6%	94.4%	100%
Years in the Coast Guard	3	2/4*	5-7	5-7
Years in Current Assignment	<1/2*	<1/2*	<1	2
Years Worked for Current Supervisor	1-2	1-2	1-2	1-2

\* NOTE: "x/x" indicates a bi-modal distribution

## 2. Behavior Criteria: Late Treatment Groups

Hypothesis B examined the relationships between the early and late treatment groups' actual score means for the sub-hypotheses of interest. As shown in Chapter 3, Table XII, subordinates' perception of supervisors' behavior did not change significantly after training for either of the two factors examined. This result indicates that supervisors' behavior was not affected by the training program. As

discussed in the preceding section, however, there are many rival hypotheses to explain why training did not appear to have an impact on behavior. These include rising expectations from the subordinates and their changing understanding of what is the ideal standard of behavior compared with reality ("instrumental decay"). The same possibilities for contamination exist for these late treatment groups as for the early treatment groups as discussed in the preceding section.

The study of the longitudinal effects of training on supervisor behavior were examined in Hypothesis E, with no significant difference detected for the combined late treatment groups. Further data analysis was done to examine the rival hypothesis of differential impact of training on the late treatment groups. It was found that group L6 showed a significant increase ( $p > .055$ ) in the ratings for factor one, "problem solving support." No significant differences were noted for group L4 on either factor or for L6 on the second factor. No significant longitudinal difference was noted for group L6 on factor one between administrations three and four, indicating a possible long term effect for this factor. As with the early treatment groups, this result indicates that the training was effective for one group on one factor, but overall made no difference on subordinate perception of supervisors' behavior. Further study to determine why there is a differential effect would

be useful for diagnostic purposes, but is beyond the scope of this thesis.

### 3. Learning Criteria

If the training made no difference on supervisor behavior, a logical first step toward explaining why is to examine learning, the increase in knowledge as measured by the Multiple-Choice Questionnaire. Sub-hypothesis H(A3) examined the difference in knowledge after training for the early treatment group and sub-hypothesis H(B3) examined the differences for the late treatment groups. As shown in Chapter 3, Table X, there was a significant increase for the early treatment group ( $p > 0.010$ ). For the late treatment groups, Table XII shows an increase significant at only the 0.087 level. The mean scores, however, appeared to be fairly low. The mean score for the early treatment group was only 59% (9 of 15 correct) and for the late treatment group was 53% (8 of 15 correct) after training. Group E3 showed a significantly higher mean score ( $p > .100$ ) than group E5 (67% vs. 47% correct) after training. For the late treatment groups, C6 showed a significant increase in knowledge (at the .029 level) to 70% correct, while L4 showed no significant increase and a mean score of 37% after training. These results follow the results in the previous sections, indicating that the training was effective for groups E3 and L6, but overall was ineffective. Although when this number of hypotheses are tested some are bound to be significant by

chance, it is felt that the consistency of this particular finding (both behavior and knowledge were found to be significantly higher for groups E3 and L6) gives it more credibility than it might otherwise merit and should be considered for diagnostic purposes.

#### 4. Results Criteria

Results criteria in terms of subordinates' and supervisors' views of organizational climate, satisfaction and commitment to the Coast Guard were measured by Part II of both the Subordinate Organization Survey and the Supervisory Organization Survey questionnaires. For the early treatment groups, sub-hypotheses H(A4), H(A5) and H(A6) examine the results criteria for subordinates, and sub-hypotheses H(A7), H(A8) and H(A9) examine these criteria for the supervisors. As shown in Table X, there is no significant change for the supervisors on these criteria, but for the subordinates there is a significant decrease immediately after training for all three categories. Hypotheses C and D examined the longitudinal effects for these sub-hypotheses. At administration three, as shown in Table XIII, subordinate commitment shows the most significant change ( $p > .172$ ), moving slightly upward. At administration four, as shown in Table XIV, supervisor commitment shows the most significant change ( $p > .211$ ), also moving slightly upward. In summary, for the early treatment groups, there appears to be no change for the supervisors

and a negative change for the subordinates in terms of the results criteria.

For the late treatment groups, sub-hypotheses H(B4), H(B5) and H(B6) examine the results criteria for subordinates and H(B7), H(B8) and H(B9) examine the criteria for the supervisors. As shown in Table XII, there is no significant change in any of these cases immediately following training. Hypothesis E examines the longitudinal effects for these sub-hypotheses. As shown in Table XV, subordinate commitment shows a slight increase ( $p > .113$ ) for administration four.

These results indicate a difference in the reception by the subordinates between the early and late treatment groups. Perhaps the implementation of practice of the problem solving skills was handled differently between the early and late treatment groups. Further study of this issue, as well as investigation of possible differential effects between the "early" groups and between the "late" groups, would be useful for diagnostic purposes. Within the scope of this research, it appears that training has not had a positive impact on these results criteria, and for the early treatment group, the impact on these criteria has been negative.

#### F. CONCLUSIONS AND RECOMMENDATIONS

The overall results of this analysis indicate that the training package was not effective in changing the

supervisors' behavior; it had moderate success in teaching a knowledge of the problem solving process; it had a negative impact on subordinate perception of organizational climate, satisfaction and commitment to the Coast Guard for the early treatment group and no significant impact on these criteria for the late treatment group. Figure 4.1 through Figure 4.9 provide a summary of the results of the study of the sub-hypotheses considered in this analysis. A "+" or "-" indicates the direction of change. Without further study investigating the reasons why behavior change did not occur for all treatment groups, the results of this study suggest that the U.S. Coast Guard implementation of this training package should not proceed.

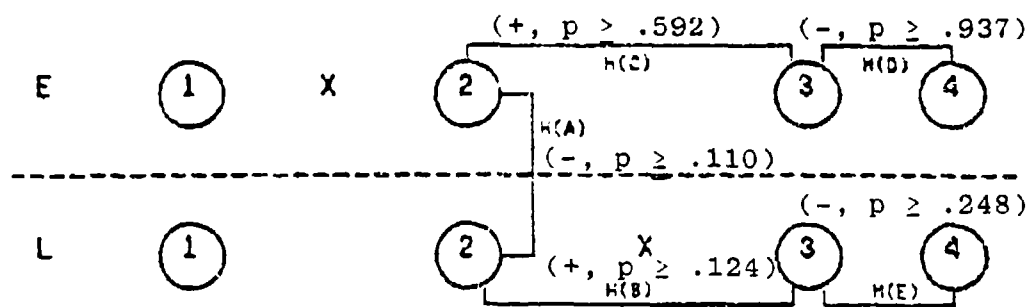


Figure 4.1 Problem Solving Support



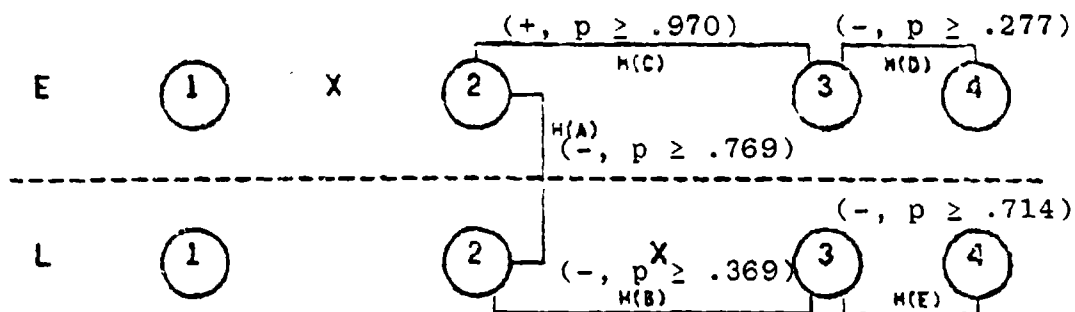


Figure 4.2 Passing the Buck

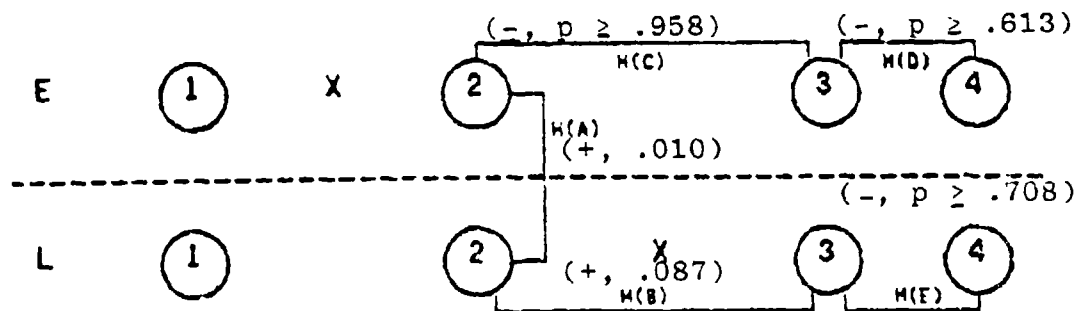


Figure 4.3 Multiple-Choice Questionnaire Score

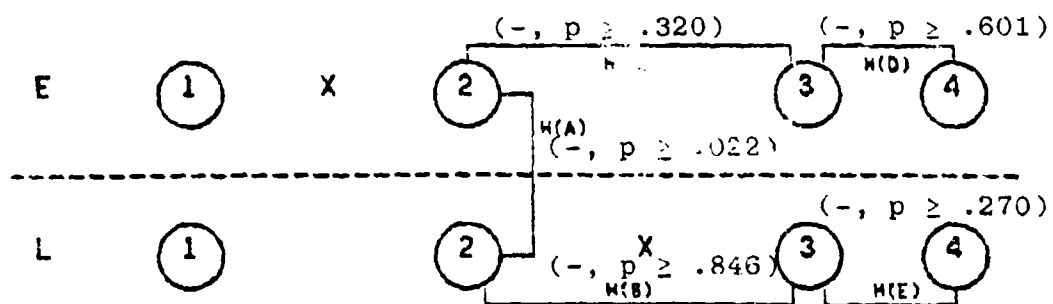


Figure 4.4 Subordinate Perception of Organizational Climate

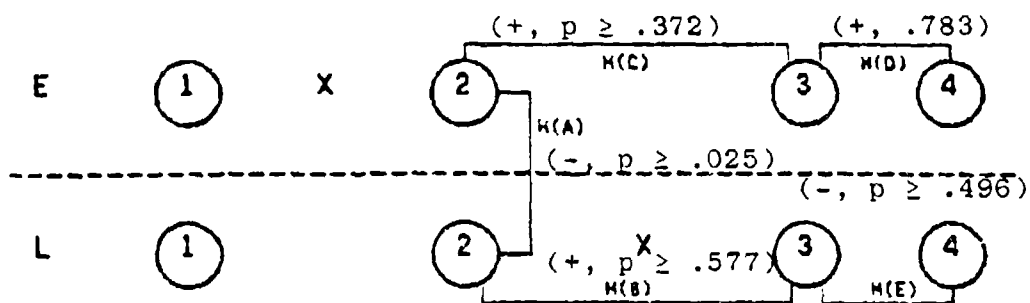


Figure 4.5 Subordinate Satisfaction

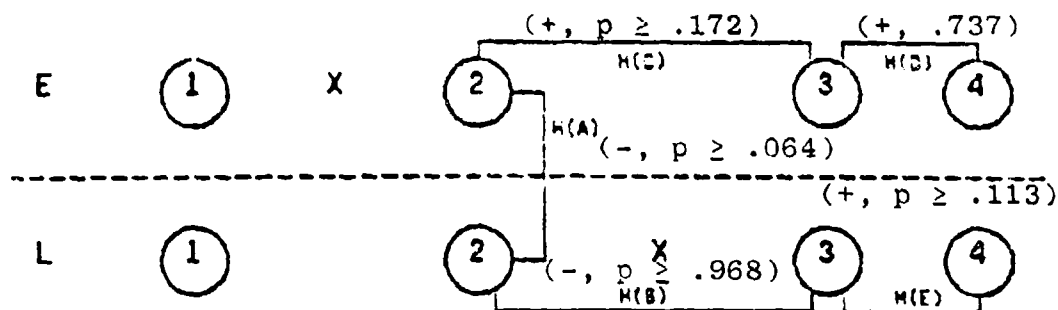


Figure 4.6 Subordinate Commitment

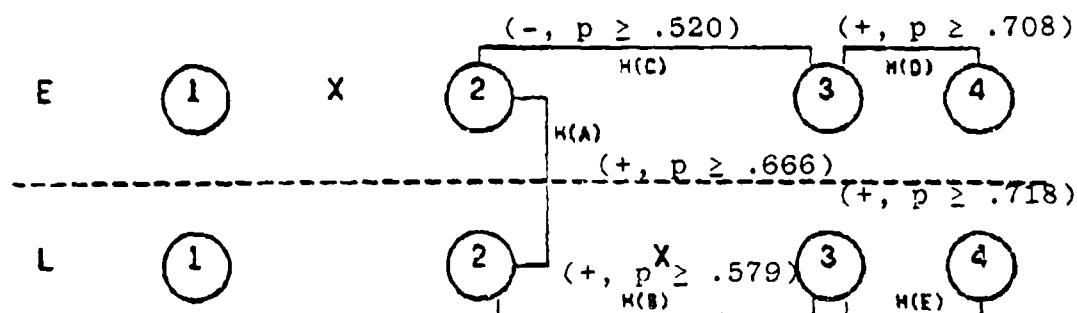


Figure 4.7 Supervisor Perception of Organizational Climate

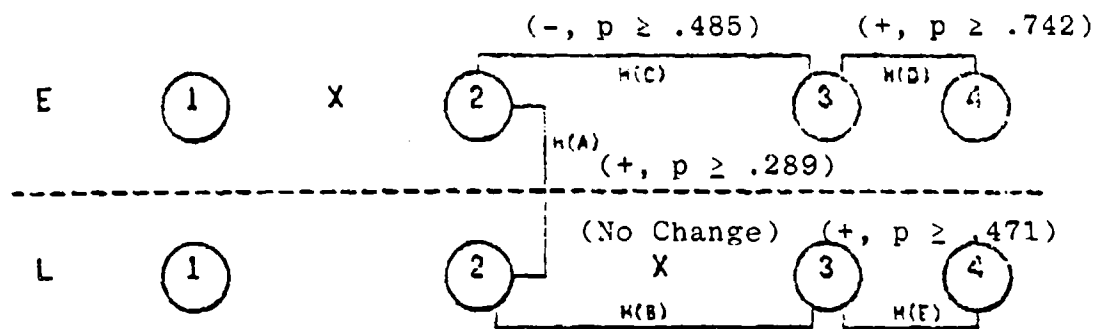


Figure 4.8 Supervisor Satisfaction

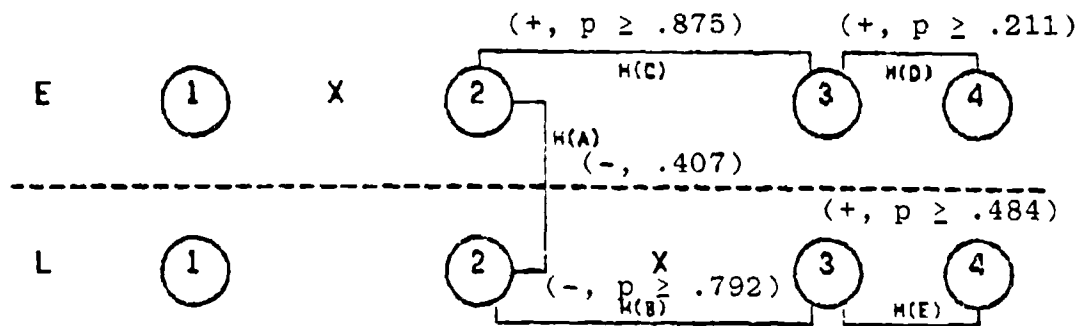


Figure 4.9 Supervisor Commitment

# APPENDIX A QUESTIONNAIRE CODING

## A. INTRODUCTION

This appendix relates the four survey instruments used to study the effectiveness of the "Problem Solving Skills for Managers" training package to the variable names and value labels assigned to the SPSS System File developed to facilitate the analysis. Four separate files were established, one for each survey instrument. They are: SUBQ (Subordinate Organization Survey); SUPQ (Supervisory Organization Survey); MCQ (Multiple Choice Questionnaire); and SETQ (Supervisory Evaluation of Training Questionnaire).

The questionnaires were administered according to the following schedule:

Station E300	A1	X	A2		A3	A4
Station E500	A1	X	A2		A3	A4
<hr/>						
Station L400	A1		A2	X	A3	A4
Station L600	A1		A2	X	A3	A4

A1 refers to the first administration, A2 to the second administration and so on. SUBQ, SUPQ, and MCQ were filled out at all four administrations. SETQ was filled out only in the administration immediately following treatment (designated by "X").

## B. SUBORDINATE ORGANIZATION SURVEY

This questionnaire was given to subordinates of the supervisors who were trained or scheduled to be trained as part of the study to measure how supervisors in the Coast Guard work with their subordinates. The first five questions asked for some biographical data of the survey respondents. SUBQ106A through SUBQ108C asked for the subordinates' attitudes or opinions about what it is like to work in the Coast Guard. The remaining questions dealt specifically with how the subordinates' supervisors and others work with them.



USCG (1-4)  
SUBQ (6-9)  
ADMIN (10)  
UNIT (12-15)

## INTERACT PERFORMANCE SYSTEMS, INC.

### SUBORDINATE ORGANIZATION SURVEY

#### IMPORTANT PLEASE READ

This questionnaire is being given to you as part of a study to measure how supervisors in the Coast Guard work with their subordinates. There are three parts to this questionnaire. Part I asks you some basic questions about yourself. This helps us make sure that different units in the Coast Guard are included in a fair way. Part II asks for your attitudes or opinions about what it's like to work in the Coast Guard. Part III asks very specific questions about how your supervisor and others work with you.

All of your answers will be strictly confidential. Only the researchers at Interact Performance Systems will have access to your questionnaire.

This questionnaire will be repeated in a few months, and we would like to learn your views at both times. In order to follow your responses over the months and at the same time make sure you remain anonymous, we ask that you code each questionnaire in the following way:

1. Print the first letter of your Mother's  
first name. . . . . → \_\_\_\_\_
2. Print the first letter of your Father's  
first name. . . . . → \_\_\_\_\_
3. Print the two numbers which represent the  
day of the month of your birthday . . . . . → \_\_\_\_\_ (17-20)

Please note example:

If your mother's name is Mary Smith. . . . . → M

If your father's name is Robert Smith put an R  
in the space. Please do not put a B even if his  
nickname is Bob . . . . . → R

If you were born on the 16th of the month. . . . . → 1 6

Or if you were born on the 5th of the month. . . . . → 0 5

(Please include a zero in the first space if you were born before the 10th of the month.)

Name of your current supervisor:

--	--	--	--

(21-24)

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#### INSTRUCTIONS

1. Most questions can be answered by choosing one of the answers given. If you do not find the exact answer that fits your case, choose the one that is closest to it.
2. Answer questions by circling the number of your answer choice, as shown in this example.

Q: To what extent are you satisfied with the car you drive?

1 2 3 4 5 6 7

(A response of "5" would mean that you are satisfied with the car you drive somewhere between "some extent" and "great extent" but closer to "some extent.")

3. Be sure each answer is clearly marked.

PLEASE ANSWER EVERY QUESTION



PART I

SUBQ101

1. Age?

- |             |                |      |
|-------------|----------------|------|
| a. under 20 | f. 40 to 44    | (25) |
| b. 20 to 24 | g. 45 to 49    |      |
| c. 25 to 29 | h. 50 to 54    |      |
| d. 30 to 34 | i. 55 and over |      |
| e. 35 to 39 |                |      |

SUBQ102

2. Sex?

- |           |      |
|-----------|------|
| a. Female | (26) |
| b. Male   |      |

SUBQ103

3. Years in the Coast Guard?

- |                |                 |      |
|----------------|-----------------|------|
| a. Less than 1 | f. 5 to 7       | (27) |
| b. One         | g. 8 to 10      |      |
| c. Two         | h. 11 to 15     |      |
| d. Three       | i. More than 15 |      |
| e. Four        |                 |      |

SUBQ104

4. Years in current assignment?

- |                |                 |      |
|----------------|-----------------|------|
| a. Less than 1 | f. 5 to 7       | (28) |
| b. One         | g. 8 to 10      |      |
| c. Two         | h. 11 to 15     |      |
| d. Three       | i. More than 15 |      |
| e. Four        |                 |      |

SUBQ105

5. Time spent working for your current supervisor?

- |                       |                       |      |
|-----------------------|-----------------------|------|
| a. Less than 3 months | f. 5 to 7 years       | (29) |
| b. 3 to 6 months      | g. 8 to 10 years      |      |
| c. 7 to 11 months     | h. 11 to 15 years     |      |
| d. 1 to 2 years       | i. More than 15 years |      |
| j. 3 to 4 years       |                       |      |

## PART II

This part of the survey contains questions about what it's like to work for the Coast Guard. Once again, your responses will be confidential.

To what extent:		Not at all							Some extent							Great extent																
		1	2	3	4	5	6	7		1	2	3	4	5	6	7		1	2	3	4	5	6	7		1	2	3	4	5	6	7
SUBQ105.	a. Do the supervisors and those senior to them at this unit have an interest in the well being and morale of the people who work here?	1	2	3	4	5	6	7																								(30)
SUBQ106b.	Do the supervisors and those senior to them at this unit try to improve working conditions?	1	2	3	4	5	6	7																								
SUBQ106c.	Do your supervisors and those senior to them at this unit schedule the work that needs to be done with the subordinates in mind?	1	2	3	4	5	6	7																								
SUBQ106d.	Do you feel motivated to give your best effort to the Coast Guard?	1	2	3	4	5	6	7																								
SUBQ106e.	Do people who do the most on their jobs get rewarded the most?	1	2	3	4	5	6	7																								
SUBQ106f.	Are there things about working here that encourage you to work hard?	1	2	3	4	5	6	7																								
SUBQ106g.	Are decisions regarding the way work gets done made by those who have the best information?	1	2	3	4	5	6	7																								
SUBQ106h.	Is information in this unit widely shared so that those who make decisions have access to all available know-how?	1	2	3	4	5	6	7																								
SUBQ106i.	Is the amount of information you get about what is going on in your division adequate for you to do a better job?	1	2	3	4	5	6	7																								
SUBQ106j.	Do you get the information you need about your own job in order to do your job in the best way?	1	2	3	4	5	6	7																								
SUBQ106k.	Is your supervisor willing to listen to your ideas and suggestions?	1	2	3	4	5	6	7																								
SUBQ106l.	Are those above your supervisor open to your ideas and suggestions?	1	2	3	4	5	6	7																								(41)

SUBQ106 m. Are problems discussed in a professional and helpful manner?

Not at all  
1 2 3 4 5 6 7 (42)

Some extent

SUBQ106 n. Do supervisors and those senior to them show concern and understanding for people when talking about problems?

1 2 3 4 5 6 7

All in all, how satisfied are you with:

SUBQ107. a. The people in your division?

Very dissatisfied  
1 2 3 4 5 6 7

Neither satisfied nor dissatisfied

Very satisfied

SUBQ107b. With people in the Coast Guard who are outside your division?

1 2 3 4 5 6 7

SUBQ107c. With your supervisor?

1 2 3 4 5 6 7

SUBQ107d. With your job?

1 2 3 4 5 6 7

SUBQ107e. With your pay?

1 2 3 4 5 6 7

SUBQ107f. With the way problems get solved in your division?

1 2 3 4 5 6 7

To what extent:

SUBQ108. a. Would you consider taking a job similar to the one you now have (outside the Coast Guard), in the same city, with no loss of benefits, and with a 10% raise in pay?

1 2 3 4 5 6 7

SUBQ108b. Are you glad you chose the Coast Guard for a career over the other career opportunities you might have had?

1 2 3 4 5 6 7

SUBQ108c. Are you committed to working for the Coast Guard as long as your personal situation (your health, spouse's or family's needs, etc.) allows you to?

1 2 3 4 5 6 7 (52)

## PART III

The last section focused on your opinions and feelings. This section focuses on your observations.

The following questions refer to how your supervisor deals with problems in your division.

To what extent:		Not at all			Some extent			Great extent	
		1	2	3	4	5	6	7	
SUBQ109. a.	Does your supervisor keep up-to-date with the problems you are experiencing on the job?	1	2	3	4	5	6	7	(53)
SUBQ109b.	Does your supervisor take time discussing your point of view on your work?	1	2	3	4	5	6	7	
SUBQ109c.	Does your supervisor take time to ask you whether there are ways he or she can help make your job easier?	1	2	3	4	5	6	7	
SUBQ109d.	Does your supervisor come to your work area to ask you whether you need any help to make your job easier?	1	2	3	4	5	6	7	
SUBQ109e.	Does a problem have to get out of hand before your supervisor chooses to deal with it?	1	2	3	4	5	6	7	
SUBQ109f.	Does your supervisor fail to deal with problems before they become severe?	1	2	3	4	5	6	7	
SUBQ109g.	Does your supervisor give you excuses for not solving problems that show you he or she won't "go to bat" for you?	1	2	3	4	5	6	7	
SUBQ109h.	Is your supervisor unwilling to argue or fight for you to solve problems you bring up?	1	2	3	4	5	6	7	
SUBQ109i.	Does your supervisor refuse to take on the people in power in order to remove complaints in your department?	1	2	3	4	5	6	7	
SUBQ109j.	Is your supervisor supportive in solving work related problems you want help with?	1	2	3	4	5	6	7	
SUBQ109k.	Does your supervisor bring resources to bear to help you solve problems on the job?	1	2	3	4	5	6	7	(63)

	No: at all			Some extent		Page 7		Great extent	
	1	2	3	4	5	6	7		(64)
SUBQ109l. Does your supervisor say he or she will take action on a problem but then never get back to you to solve it?									
SUBQ109m. Does your supervisor promise to see what can be done about a problem but then never let you know what he or she did to solve it?	1	2	3	4	5	6	7		
SUBQ109n. Is your supervisor quick to follow through on problems you bring to his or her attention?	1	2	3	4	5	6	7		
SUBQ109o. Does your supervisor take action in a timely way to solve complaints you bring to his or her attention?	1	2	3	4	5	6	7		
SUBQ109p. Does your supervisor get on your case too much about little things that are not worth the time they'd take to fix?	1	2	3	4	5	6	7		

#### 10. Talking About Problems on the Job

SUBQ110a. When your supervisor brings up a problem, to what extent is he or she clear about exactly what is bothering him or her?	1	2	3	4	5	6	7		
SUBQ110b. To what extent is your supervisor clear about the facts of problems?  (That is, to what extent does he or she use specific statements such as, "You filed the Jones file under the K's" instead of vague statements such as, "You aren't filing these correctly.")	1	2	3	4	5	6	7		

#### 11. Talking About Problems

SUBQ111a. To what extent does your supervisor put you down when describing problems?	1	2	3	4	5	6	7		
SUBQ111b. To what extent does your supervisor draw conclusions about you as a person when discussing problems?  (That is, to what extent does he or she say things about you like, "You're lazy, you've got a bad attitude, you're incompetent," instead of just describing what is wrong with the job?)	1	2	3	4	5	6	7	(72)	

## 12. Listening to You

When you talk with your supervisor about work,  
to what extent does he or she:

	Not at all				Some extent			Great extent	
SUBQ112 a. Listen to your point of view without interrupting or cutting you off?	1	2	3	4	5	6	7		(73)
SUBQ112 b. Demonstrate by restating that he or she fully understands the point you are trying to make?	1	2	3	4	5	6	7		
SUBQ112 c. Accurately summarize your feelings on the matter?	1	2	3	4	5	6	7		
SUBQ112 d. Carefully listen without arguing or becoming upset?	1	2	3	4	5	6	7		

13. a. To what extent does your supervisor impose a solution to a problem without first stopping to figure out what is going on?

1 2 3 4 5 6 7

SUBQ113 b. To what extent does your supervisor "shoot from the hip" when solving problems instead of stopping to learn about the problem first?

1 2 3 4 5 6 7

SUBQ113 c. To what extent does your supervisor blame you for problems that aren't your fault?

1 2 3 4 5 6 7

SUBQ113 d. When discussing a problem with you, to what extent does your supervisor assume you're the cause of the problem when you're not?

1 2 3 4 5 6 7 (80)

CARD 2

## 14. Explaining the Reasons Why Something Must be Done a Certain Way

SUBQ114a. When discussing a problem, to what extent does your supervisor clearly explain what would go wrong with the job if the problem weren't corrected?

1 2 3 4 5 6 7 (25)

SUBQ114b. To what extent does your supervisor explain how correcting a problem affects the job?

1 2 3 4 5 6 7 (28)

## 15. Answering Questions About Why Something Must be Done a Certain Way

	Not at all			Some extent			Great extent	
	1	2	3	4	5	6	7	(27)
SUBQ115a. When answering questions about why something must be done a certain way, to what extent does your supervisor order you to do it the way he or she wants?								
SUBQ115b. When answering questions about why something must be done a certain way, to what extent does your supervisor threaten you with what might happen if you don't do what he or she wants?								
SUBQ115c. When answering questions about why something must be done a certain way, to what extent does your supervisor use his or her "stripes" as your supervisor to get you to do what he or she wants?								

## 16. Respecting your Ideas

SUBQ116a. To what extent does your supervisor treat you in a way that shows he or she values your experience and opinions on the job?	1	2	3	4	5	6	7
SUBQ116b. To what extent does your supervisor show respect for your ideas and abilities on the job?	1	2	3	4	5	6	7

## 17. To what extent:

SUBQ117a. Does your supervisor try to find ways to make the job easier in the future?	1	2	3	4	5	6	7
SUBQ117b. Is your supervisor concerned about making the job less difficult the next time you have to do it?	1	2	3	4	5	6	7

(33)

		Not at all							Some extent							Great extent							
		1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	
18. After you and your supervisor have discussed a problem, to what extent:																							
SUBQ118a.	Does your supervisor leave you guessing about what should happen next?	1	2	3	4	5	6	7															(34)
SUBQ118b.	Is it left unclear as to who will do what to solve the problem?	1	2	3	4	5	6	7															
SUBQ118c.	Can you be sure that your supervisor will really followup to see that the problem is solved?	1	2	3	4	5	6	7															
SUBQ118d.	Are you able to trust that your supervisor will do what the two of you have agreed needs to be done?	1	2	3	4	5	6	7															

## 19. Dealing with an Upset Subordinate

SUBQ119a.	When dealing with an upset subordinate, to what extent does your supervisor get angry him or herself?	1	2	3	4	5	6	7															
SUBQ119b.	When dealing with an upset subordinate, to what extent does your supervisor get into an argument?	1	2	3	4	5	6	7															
SUBQ119c.	When dealing with an upset subordinate, to what extent does your supervisor ask what has made the person upset or angry?	1	2	3	4	5	6	7															
SUBQ119d.	When dealing with an upset subordinate, to what extent does your supervisor ask the person what is bothering him or her?	1	2	3	4	5	6	7															(41)



20. Doing Well on the Job

	Not at all			Some extent			Great extent	
SUBQ120a. When you have done well on the job, to what extent does your supervisor simply ignore what you have done?	1	2	3	4	5	6	7	(42)
SUBQ120b. When you have done a good job, to what extent does your supervisor express his or her appreciation for what you have done?	1	2	3	4	5	6	7	

21. To what extent:

SUBQ121a. Does your supervisor act in ways that make it hard to trust him or her?	1	2	3	4	5	6	7	
SUBQ121b. Does your supervisor tell you whatever he or she thinks you want to hear in order to get you to do what he or she wants?	1	2	3	4	5	6	7	(45)

### C. SUPERVISORY ORGANIZATION SURVEY

This questionnaire was given to supervisors who were trained or scheduled to be trained as part of the Problem Solving Skills for Managers Training Program. The first five questions asked for some biographical data of the survey respondents. SUPQ106A through SUPQ108C asked for the supervisors' attitudes or opinions about what it is like to work in the Coast Guard (i.e. Organizational Climate, Satisfaction and Commitment). The remaining questions dealt with the supervisors knowledge of problem solving and their perceptions of organizational support.



USCG (1-4)  
S U P O (6-9)  
A D M I N (10)  
UNIT \_\_\_\_\_ (12-15)

INTERACT PERFORMANCE SYSTEMS, INC.  
SUPERVISORY ORGANIZATION SURVEY

IMPORTANT PLEASE READ

This questionnaire is being given to you as part of a study to measure your opinions and observations about your work. All your answers will be strictly confidential. Only the researchers at Interact Performance Systems will have access to your questionnaire.

This questionnaire will be repeated in a few months, and we would like to learn your views at both times. In order to do this, please print your name in the space below.

Name: \_\_\_\_\_

--	--	--	--

(17-20)

Once again, only the researchers at Interact Performance Systems will have access to your survey.

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INSTRUCTIONS

1. Most questions can be answered by choosing one of the answers given. If you do not find the exact answer that fits your case, choose the one that is closest to it.
2. Answer questions by circling the number of your answer choice, as shown in this example.

Q: To what extent are you satisfied with the car you drive?

1 2 3 4 (5) 6 7

(A response of "5" would mean that you are satisfied with the car you drive somewhere between "some extent" and "great extent" but closer to "some extent.")

3. Be sure each answer is clearly marked.

PLEASE ANSWER EVERY QUESTION

PART I

SUPQ101

1. Age?

(25)

- |             |                |
|-------------|----------------|
| a. under 20 | f. 40 to 44    |
| b. 20 to 24 | g. 45 to 49    |
| c. 25 to 29 | h. 50 to 54    |
| d. 30 to 34 | i. 55 and over |
| e. 35 to 39 |                |

SUPQ102

2. Sex?

(26)

- a. Female
- b. Male

SUPQ103

3. Years in the Coast Guard

(27)

- |                |                 |
|----------------|-----------------|
| a. Less than 1 | f. 5 to 7       |
| b. One         | g. 8 to 10      |
| c. Two         | h. 11 to 15     |
| d. Three       | i. More than 15 |
| e. Four        |                 |

SUPQ104

4. Years in current assignment?

(28)

- |                |                 |
|----------------|-----------------|
| a. Less than 1 | f. 5 to 7       |
| b. One         | g. 8 to 10      |
| c. Two         | h. 11 to 15     |
| d. Three       | i. More than 15 |
| e. Four        |                 |

SUPQ105

5. Time spent working for your current supervisor?

(29)

- |                       |                       |
|-----------------------|-----------------------|
| a. Less than 3 months | f. 5 to 7 years       |
| b. 3 to 6 months      | g. 8 to 10 years      |
| c. 7 to 11 months     | h. 11 to 15 years     |
| d. 1 to 2 years       | i. More than 15 years |
| e. 3 to 4 years       |                       |

## PART II

This part of the survey contains questions about what it's like to work for the Coast Guard. Once again, your responses will be confidential.

To what extent:		Not at all			Some extent			Great extent				
		1	2	3	4	5	6	7				
SUPQ106.	a. Do the supervisors and those senior to them at this unit have an interest in the well being and morale of the people who work here?	1	2	3	4	5	6	7				(30)
SUPQ106b.	Do the supervisors and those senior to them at this unit try to improve working conditions?	1	2	3	4	5	6	7				
SUPQ106c.	Do the supervisors and those senior to them at this unit schedule the work that needs to be done with the subordinates in mind?	1	2	3	4	5	6	7				
SUPQ106d.	Do you feel motivated to give your best efforts to the Coast Guard?	1	2	3	4	5	6	7				
SUPQ106e.	Do people who do the most on their jobs get rewarded the most?	1	2	3	4	5	6	7				
SUPQ106f.	Are there things about working here that encourage you to work hard?	1	2	3	4	5	6	7				
SUPQ106g.	Are decisions regarding the way work gets done made by those who have the best information?	1	2	3	4	5	6	7				
SUPQ106h.	Is information in this unit widely shared so that those who make decisions have access to all available know-how?	1	2	3	4	5	6	7				
SUPQ106i.	Is the amount of information you get about what is going on in your division adequate for you to do a better job?	1	2	3	4	5	6	7				
SUPQ106j.	Do you get the information you need about your own job in order to do your job in the best way?	1	2	3	4	5	6	7				
SUPQ108k.	Is your supervisor willing to listen to your ideas and suggestions?	1	2	3	4	5	6	7				
SUPQ106l.	Are those above your supervisor open to your ideas and suggestions?	1	2	3	4	5	6	7				(41)

SUPQ106 m. Are problems discussed in a professional and helpful manner?

Not at all  
1 2 3 4 5 6 7  
To some extent  
To great extent

(42)

SUPQ106 n. Do your supervisors and those senior to them show concern and understanding for people when talking about problems?

1 2 3 4 5 6 7

Very dissatisfied  
Neither satisfied nor dissatisfied  
Very satisfied

All in all, how satisfied are you with:

SUPQ107. a. The people in your division?

1 2 3 4 5 6 7

SUPQ107 b. With people in the Coast Guard who are outside your division?

1 2 3 4 5 6 7

SUPQ107 c. With your supervisor?

1 2 3 4 5 6 7

SUPQ107 d. With your job?

1 2 3 4 5 6 7

SUPQ107 e. With your pay?

1 2 3 4 5 6 7

SUPQ107 f. With the way problems get solved in your division?

1 2 3 4 5 6 7

To what extent:

SUPQ108. a. Would you consider taking a job similar to the one you now have (outside the Coast Guard), in the same city, with no loss of benefits, and with a 10% raise in pay?

1 2 3 4 5 6 7

SUPQ108 b. Are you glad you chose the Coast Guard for a career over the other career opportunities you might have had?

1 2 3 4 5 6 7

SUPQ108 c. Are you committed to working for the Coast Guard as long as your personal situation (your health, spouse's or family's needs, etc.) allows you to?

1 2 3 4 5 6 7

(52)

This part of the survey contains questions about different approaches you might use to solve problems on the job. Different training programs recommend different approaches to solving problems, but we are interested in your opinion as to which approaches you find useful in the Coast Guard.

		<div> <div>Not at all</div> <div>Some extent</div> <div>Great extent</div> </div>							
1. When beginning a problem solving discussion with a subordinate, to what extent do you feel it is useful to:		1	2	3	4	5	6	7	
SUPQ109a.	Begin the discussion by noting what the subordinate is doing well before bringing up the problem?								(53)
SUPQ109b.	Begin by discussing the facts and details of the problem so that you won't get into an argument about what happened?	1	2	3	4	5	6	7	
SUPQ109c.	Begin the discussion by asking what is going on so that the subordinate will feel free to discuss his or her concerns?	1	2	3	4	5	6	7	
2. To help a subordinate overcome a problem that is preventing him or her from doing his or her job, to what extent do you feel it is useful to start by:									
SUPQ110a.	Finding someone with more experience or knowledge than the subordinate to help him or her with the job?	1	2	3	4	5	6	7	
SUPQ110b.	Asking the subordinate what he or she thinks is the best way to solve the problem?	1	2	3	4	5	6	7	
SUPQ110c.	Using your own skill to decide what needs to be done and have the subordinate do it?	1	2	3	4	5	6	7	(58)



		Not at all							Some extent							Great extent							
		1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	
3.	When subordinates complain about doing a job that is hard but necessary to do, to what extent do you feel it is important to:																						
SUPQ111	a. Maintain control by focusing on the specific disciplinary actions you could take?	1	2	3	4	5	6	7															(59)
SUPQ111	b. Remind them they work under you and that it's your job to make the decisions?	1	2	3	4	5	6	7															
SUPQ111	c. Stay on top of the situation by telling them that they must do the job the way you tell them to?	1	2	3	4	5	6	7															
SUPQ111	d. Let them know you will help them later if they help you now?	1	2	3	4	5	6	7															
SUPQ111	e. Promise them some sort of reward for putting out the extra effort?	1	2	3	4	5	6	7															
SUPQ111	f. Remind them of what could happen to the job if they do not put out the extra effort?	1	2	3	4	5	6	7															
4.	When one of your subordinates gets upset or angry, to what extent do you feel it is useful to:																						
SUPQ112	a. Inform the subordinate of the disciplinary actions you will take if he or she doesn't control his or her temper?	1	2	3	4	5	6	7															
SUPQ112	b. Ask the subordinate to cool off before discussing the matter with you?	1	2	3	4	5	6	7															
SUPQ112	c. Ask the subordinate to go for a walk, get a drink, or take a break so that he or she will be less emotional when you discuss the problem?	1	2	3	4	5	6	7															
SUPQ112	d. Avoid getting into the subordinate's emotions by focusing on the job?	1	2	3	4	5	6	7															
SUPQ112	e. Ask for details about what is making the subordinate upset?	1	2	3	4	5	6	7															
SUPQ112	f. Tell the subordinate you have felt the same way before and that you sympathize with his or her anger?	1	2	3	4	5	6	7															(70)

5. When you have to deal with a tough problem or a touchy situation with one of your subordinates, to what extent do you:		Not at all	1	2	3	4	5	6	7	
			Some extent					Great extent		
SUPQ113a.	Feel stress or tension?	1	2	3	4	5	6	7		(71)
SUPQ113b.	Feel confident and sure?	1	2	3	4	5	6	7		
SUPQ113c.	Feel annoyed or irritated?	1	2	3	4	5	6	7		
6. To what extent do your subordinates:										
SUPQ114a.	Create problems you have to solve?	1	2	3	4	5	6	7		
SUPQ114b.	Need to be watched if they are to put out their best effort?	1	2	3	4	5	6	7		
SUPQ114c.	Need to be told what to do next on the job?	1	2	3	4	5	6	7		
SUPQ114d.	Lack the ability or experience to do their jobs without your guidance?	1	2	3	4	5	6	7		
SUPQ114e.	Try to appear "innocent" instead of taking responsibility for problems they have caused?	1	2	3	4	5	6	7		
SUPQ114f.	Give questionable or unlikely excuses to avoid blame?	1	2	3	4	5	6	7		
SUPQ114g.	Try to undermine your respect and authority?	1	2	3	4	5	6	7		(80)
										CARD 2
SUPQ114h.	Act in ways that question your leadership?	1	2	3	4	5	6	7		(25)
SUPQ114i.	Take offense at little things that shouldn't matter?	1	2	3	4	5	6	7		
SUPQ114j.	Get angry or defensive without good reason?	1	2	3	4	5	6	7		
SUPQ114k.	Get frustrated too easily when a difficult job must be done?	1	2	3	4	5	6	7		
SUPQ114l.	Try to take advantage of you if you try to be their friend?	1	2	3	4	5	6	7		(29)

## 7. To what extent:

	Not at all			Some extent			Great extent	
SUPQ119a. Is just doing a good job important to your subordinate?	1	2	3	4	5	6	7	(30)
SUPQ119b. Do your subordinates take an interest in doing their best on the job?	1	2	3	4	5	6	7	(17)

## 8. To what extent do you:

SUPQ116 a. Set aside extra time each day to ask subordinates about problems in their work areas?	1	2	3	4	5	6	7	
SUPQ116 b. Sit down and plan how you will solve a problem with a subordinate before going out and solving it?	1	2	3	4	5	6	7	
SUPQ116 c. Rehearse in your mind what you will say to a subordinate before starting a problem-solving discussion?	1	2	3	4	5	6	7	
SUPQ116 d. Pause to list in your head what the results of a problem might be before discussing the problem with a subordinate?	1	2	3	4	5	6	7	
SUPQ116 e. Stop to think of all the reasons a job needs to be done a certain way before discussing the job with a subordinate?	1	2	3	4	5	6	7	(38)

		Not at all							Some extent							Great extent							
		1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	
9. To what extent do other supervisors you work with:																							
SUPQ117a.	Discuss problems with you before the problem gets out of hand?	1	2	3	4	5	6	7															(37)
SUPQ117b.	Ask for your point of view as to what is causing a problem?	1	2	3	4	5	6	7															
SUPQ117c.	Work with you instead of blaming you when problems come up.	1	2	3	4	5	6	7															
SUPQ117d.	Discuss problems without becoming upset or raising their voices?	1	2	3	4	5	6	7															
SUPQ117e.	Show respect for your experience and expertise?	1	2	3	4	5	6	7															
SUPQ117f.	Follow through on their commitments to you?	1	2	3	4	5	6	7															
SUPQ117g.	"Go to bat" for you by taking on others when it is required?	1	2	3	4	5	6	7															
SUPQ117h.	Take action on problems that you bring to their attention?	1	2	3	4	5	6	7															

10. To what extent does your supervisor:																							
SUPQ118a.	Discuss problems with you before the problem gets out of hand?	1	2	3	4	5	6	7															
SUPQ118b.	Ask for your point of view as to what is causing a problem?	1	2	3	4	5	6	7															
SUPQ118c.	Work with you instead of blaming you when problems come up?	1	2	3	4	5	6	7															
SUPQ118d.	Discuss problems without becoming upset or raising their voices?	1	2	3	4	5	6	7															
SUPQ118e.	Show respect for your experience and expertise?	1	2	3	4	5	6	7															
SUPQ118f.	Follow through on their commitments to you?	1	2	3	4	5	6	7															
SUPQ118g.	"Go to bat" for you by taking on the others when it is required?	1	2	3	4	5	6	7															
SUPQ118h.	Take action on problems that you bring to their attention?	1	2	3	4	5	6	7															(52)

#### D. MULTIPLE CHOICE QUESTIONNAIRE

This questionnaire was given to supervisors who were trained or scheduled to be trained as part of the Problem Solving Skills for Managers Training Program. MCQ101 through MCQ115 measured the supervisors' knowledge about problem solving. The remaining questions dealt with the supervisors' recognition of opportunities to use problem solving skills.



DATE 11-11  
MCQ 15-7  
ADMIN 18  
UNIT 11-14

INTERACT PERFORMANCE SYSTEMS  
MULTIPLE CHOICE QUESTIONNAIRE

Name: \_\_\_\_\_

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(16-20)

The following questions provide situations you might face at work, and give five different ways you might respond to them. Pick the one best response by circling the number in front of it.

MCQ101

A. You notice a person who has been working for you only a short period of time using the wrong form for an important report. You approach him or her and state:

1. "Do you need any help on this?"
2. "You're using the wrong form for this report. Is there anything we can do to avoid this happening in the future?"
3. "I notice you are using the CG 3312A form and this report calls for the CG 3307 form."
4. "When you use the CG 3312A form we don't get the information required by District."
5. "Is there anything I can do to help you learn which forms to use for the different reports you prepare?"

(25)

MCQ102

B. In talking with a subordinate, you become aware of a rather complicated problem. You have a fairly good idea why the problem exists, but are not totally certain.

1. "You seem to be having a problem with . . . Is it because of . . . ?"
2. "Here is what I think is causing the problem . . . What do you think?"
3. "Thanks for pointing the problem out. I'll check into it and get back with you later this afternoon."
4. "Thanks for pointing the problem out. Do you want me to get you some help to solve it?"
5. "What do you think might be causing this problem?"

(26)

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MCQ103

C. One of your subordinates finishes a complicated inspection ahead of schedule making it possible for you to get under way ahead of time.

You approach the subordinate and state:

1. "Finishing that inspection ahead of schedule really helped out. What can I do to help you beat schedules in the future?"
2. "Finishing that inspection this morning made it so I could get under way ahead of time. Thanks."
3. "I really appreciate your finishing that inspection ahead of schedule this morning. Thanks." (27)
4. "Because of your good attitude, we were able to get under way ahead of schedule. That was really important to the crew. Thanks."
5. "You're a real dependable person. Being able to depend on you takes a lot of pressure off me. Keep it up."

MCQ104

D. You observe a subordinate using a shortcut to complete an important electrical test. After you explain that failure to follow the test procedures could produce inaccurate results, the employee says:

"This shortcut won't make the test all that inaccurate, and besides, we've got such a backlog of these tests. This shortcut really helps me out."

Knowing that the regular procedures are, in fact, appropriate and that you have to motivate the person to use them — you respond:

1. "You seem upset, is it because you feel the tests take too much time?"
2. "Maybe these procedures are a bit too rigid. I'll check into it and let you know."
3. "If the tests are any less accurate it could damage the equipment." (28)
4. "Is there anything I can do to help you follow the correct procedures?"
5. "I know the procedures seem picky, but I'd really appreciate it if you would follow them exactly."

- E. You observe that the lookout on watch is absent-mindedly staring at the deck rather than alertly scanning the horizon. After explaining that the way he or she is looking for ships is not active or alert enough, the lookout says:

"Trying to keep a lookout here is just busy work. There are hardly ever any ships out here. Besides, the radar will show what's out there anyway."

Knowing that keeping an active watch is important, you respond:

1. "I appreciate that it's tough, but it's your job and I have confidence you can do it."
2. "I can see you're really bored. Is there anything I can do to help you stay alert?"
3. "I understand your concern, but trust me, keeping an alert watch is critical."
4. "I know what you mean. Maybe we can manage with just the radar for a while."
5. "If you don't keep an alert watch we could miss craft that radar doesn't pick up."

(29)

## MCQ106

- F. A subordinate has just come to you with a work-related problem. The subordinate is VERY ANGRY about the equipment he or she has to work with and states:

"This #@% equipment is driving me nuts!  
It's way too slow!"

You respond

1. "What seems to be the exact problem?"
2. "What's making you mad is that the equipment is slowing you down?"
3. "Could you help me understand how this could affect our schedule?"
4. "Is there anything I can do to help you solve the problem?"
5. "Do you think we can gather information in order to figure out why it is slowing so much?"

(30)



MCQ107

G. You notice an experienced subordinate involved in an unsafe work practice. You approach him or her and state:

1. "This is the third time this week I've noticed you standing inside the recommended safe distance of this equipment."
2. "You shouldn't be doing that. You could get hurt."
3. "If that machine acts up it could break your wrist."
4. "I'd really hate to see you get hurt. Try to be safer from now on."
5. "You're working in an unsafe manner. Is there anything we can do so it won't happen in the future?"

(31)

MCQ108

H. You've just spoken to a subordinate about using an incorrect procedure. The subordinate becomes furious and states:

"I'm not the only one who does the job this way!  
Why pick on me?"

You respond:

1. "Is there a way I can help you so you won't have to use this incorrect procedure in the future?"
2. "Using this procedure could result in a loss of water tight integrity."
3. "I know other people do the job this way too, but right now we're talking about you."
4. "You seem upset. Do you think I'm picking on you?"
5. "I can see you're pretty upset about this. Why don't you take a break for a few minutes and then we can talk about it."

(32)

- I. One of the best subordinates in your engineering department has been working for several hours on a very complicated part in the air conditioning system and has made little headway. You approach the subordinate and he or she says:

"Let's see if I can explain what's going on here. The inner-flange on this part needs to be rounded to within one one-thousandth in order to set the bearing and seal combination. I've got part of it ground out, but the ledge where the seal goes isn't right and I need to figure out a way to make a diagonal cut so that I can get it to tolerance."

You respond:

1. "Sounds to me like you've got a good start at solving the problem. If you keep at it, I have confidence that you'll be able to solve it."
2. "I'll get another engineer to help you. Meanwhile, you keep working at it so that we can complete this repair on schedule and meet our commitment by five tonight."
3. "This problem sounds pretty complicated. What do you think is causing it?"
4. "It sounds to me like you could use some help from the company that designed this."
5. "Let's see if I understand. You've got part of the job done, but you are being slowed down because of troubles in grinding out the ledge."

(33)

Answer the following questions by circling the number in front of the response that you think best deals with the situation.

## MCQ110

- J. In observing a problem with a subordinate, it is best to first:

1. Ask the subordinate what he or she is doing and why.
2. Ask what you can do to help.
3. Make the subordinate feel at ease by first striking up a friendly conversation.
4. Describe the nature of the problem in detail.
5. Explain the consequences of what the subordinate is doing.

(34)

MCQ111

Page 6

K. When working with a subordinate in order to find out why a particular problem he or she faces exists, it is best to:

1. Bring two or more subordinates together to involve them all in participative decision making.
2. Outline what you think the source of the problem is and ask the subordinate what he or she thinks.
3. Ask the subordinate if he or she would like you to bring in an expert to help solve the problem. (35)
4. Ask the subordinate what he or she thinks the source of the problem is.
5. Ask what you can do to help.

MCQ112

L. When a subordinate questions the reason why something has to be done a certain way (and you know the reason), it is best to:

1. Explain the impact that doing it the required way has on the way the job comes out.
2. Express your appreciation for the subordinate's concern, but maintain your authority by assuring him or her that those who designed the method knew what they were doing.
3. Work with the subordinate in order to determine what can be done in order to simplify making it the required way. (36)
4. Ask the subordinate whether you can help him or her do the job in the correct way.
5. Express your appreciation for the subordinate's concern and tell him or her that you will check into the matter in detail.

MCQ113

M. When a subordinate does an outstanding job, it is best to first:

1. Indicate that you are pleased with what he or she had done and that you hope he or she will be able to achieve similar results in the future.
2. Describe in detail what the subordinate did, express your appreciation and describe what happened as a result of it.
3. Put the subordinate at ease by starting with some friendly conversation. (37)
4. Express your sincere appreciation for what the subordinate did, and explain what happened as a result.
5. Express your appreciation, describing what happened as a result, and tell them you're glad they have such a good attitude.

MCQ114

N. In dealing with an angry subordinate, it is best to:

1. Go right to problem-solving in order to avoid having the subordinate get more and more angry.
2. Ask the subordinate to explain what it is that is making him or her angry.
3. Mention something the subordinate has done well to show that you value him or her.
4. Wait for the subordinate to calm down and then come back and solve the problem later.
5. Maintain your control by using a firm tone of voice and explaining the problems that happen when a person loses his or her temper on the job.

(38)

MCQ115

O. When there are several possible ways to solve a problem that a subordinate faces, and you think that some of them would probably work better than others, it is best to first:

1. Ask the subordinate for the solution that he or she thinks would work best.
2. Write down the solutions that you think would work best, and discuss them with someone who has had experience with similar problems.
3. Express your appreciation for the ideas and ask the subordinate to check them out with someone with more experience.
4. Act on the solution that you think is best and have the subordinate gather information about the problem to make sure that the solution works.
5. Call over another subordinate in order to gain more participation in solving the problem.

(39)

At one time or another, supervisors ask their subordinates for their ideas. In the following questions we give four different reasons why a supervisor might ask subordinates for their ideas. Please read each of the four reasons and then place a "1" by the reason that best represents why you ask subordinates for their ideas. Then place a "2" by the second best reason, and "3" by the third best, and a "4" by the fourth best reason.

It is best to ask subordinates for their ideas because:

- MCQ116A — A. You can help subordinates learn important skills that they need by having them work through problems themselves. (40)
- MCQ116B — B. Subordinates can help a supervisor out of a tough situation.
- MCQ116C — C. Subordinates are more likely to try the solution if they have had a real part in the decision.
- MCQ116D — D. Since subordinates are closest to the problem, they might provide information you were unaware of. (43)

It is best to ask subordinates for their ideas because:

- 117A — A. Supervisors can't be expected to know everything about each job, so they need to rely on subordinates' ideas.
- 117B — B. Since subordinates are closest to the problem, they probably have the best information.
- 117C — C. Going to all the trouble to involve subordinates can be worth it because subordinates may work harder in the long run.
- 117D — D. Subordinates should be involved simply because they need to learn and grow.

It is best to ask subordinates for their ideas because:

- 118A — A. You can get subordinates to think of your solution as their "own" idea.
- 118B — B. Even though the ideas may be impractical or naive, it is important for subordinates to feel involved.
- 118C — C. You're more likely to identify the real problem if you use the subordinates' expertise.
- 118D — D. Supervisors are so involved in managing that they must rely on the subordinates to work through the problems. (51)

#### E. SUPERVISOR EVALUATION OF TRAINING

This questionnaire was given to supervisors who had been trained as part of the Problem Solving Skills for Managers Training Program. It was designed to measure the supervisors' reaction to the training program and their motivation as determined by intrinsic and extrinsic factors.



SETQ 11-4

INTERACT PERFORMANCE SYSTEMS  
SUPERVISORY EVALUATION OF TRAINING QUESTIONNAIRE

The purpose of this questionnaire is to measure your opinion of the Interact training program you have now completed. Your answers will be kept confidential, so please feel free to say what you feel.

Name: \_\_\_\_\_ 

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(6-9)

Once again, only the researchers at Interact Performance Systems will have access to your survey.

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### INSTRUCTIONS

1. Most questions can be answered by choosing one of the answers given. If you do not find the exact answer that fits your case, choose the one that is closest to it.
2. Answer questions by circling the number of your answer choice, as shown in this example.

	Not at all			Some extent		Great extent
	1	2	3	4	5	6
Q: To what extent are you satisfied with the car you drive?						
(A response of "5" would mean that you are satisfied with the car you drive somewhere between "some extent" and "great extent" but closer to "some extent.".)						

3. Be sure each answer is clearly marked.

PLEASE ANSWER EVERY QUESTION



SETQ

I. How well do the skills work?								
To what extent are the skills taught in the program effective when you use them to:								
		Not at all			Some extent			Great extent
SETQ101A.	Begin discussing a problem with a subordinate who is performing poorly on the job?	1	2	3	4	5	6	7 (17)
SETQ101B.	Figure out why a subordinate is not performing well on the job?	1	2	3	4	5	6	7
SETQ101C.	Encourage a poorly performing subordinate to want to work harder?	1	2	3	4	5	6	7
SETQ101D.	Involve a subordinate in finding a solution to a tough problem on the job?	1	2	3	4	5	6	7
SETQ101E.	Get an angry subordinate to calm down?	1	2	3	4	5	6	7
SETQ101F.	Help a subordinate see that you understand his or her description of a complex problem?	1	2	3	4	5	6	7
SETQ101G.	Figure out long-term solutions that will keep problems from coming up in the future?	1	2	3	4	5	6	7
SETQ101H.	Make sure your subordinate understands exactly what you expect him or her to do to solve a problem?	1	2	3	4	5	6	7
II. In summary, to what extent:								
SETQ102A.	Do you think the skills taught actually work?	1	2	3	4	5	6	7
SETQ102B.	Do you disagree with a lot of what was taught in the program?	1	2	3	4	5	6	7
SETQ102C.	Are the skills taught in the program too soft so that if you use them your subordinates will take advantage of you?	1	2	3	4	5	6	7
SETQ102D.	Are the skills taught in the program too underhanded so that if you use them you feel you are taking advantage of your subordinates?	1	2	3	4	5	6	7 (28)

III. How worthwhile was the training?		Page 4						
To what extent do you think the training:		Not at all	Some extent					Great extent
		1	2	3	4	5	6	7
SETQ103 A.	Was worth the time and effort spent on it?	1	2	3	4	5	6	7 (29)
SETQ103 B.	Was an unpleasant and uncomfortable experience?	1	2	3	4	5	6	7
SETQ103 C.	Was something you enjoyed?	1	2	3	4	5	6	7
SETQ103 D.	Was largely a waste of time because you had similar training in the past?	1	2	3	4	5	6	7
SETQ103 E.	Was a waste of time because it was not related enough to the real supervisory problems you face?	1	2	3	4	5	6	7
SETQ103 F.	Made you more comfortable with the way you have to treat your subordinates in order to get things done?	1	2	3	4	5	6	7
SETQ103 G.	Wasted valuable time that you would rather have spent elsewhere?	1	2	3	4	5	6	7
IV. What kind of impact did the training have?								
To what extent do you think the training:								
		1	2	3	4	5	6	7
SETQ104 A.	Improved your skills in dealing with tough situations with your subordinates?	1	2	3	4	5	6	7
SETQ104 B.	Was something you were able to use on a daily basis?	1	2	3	4	5	6	7
SETQ104 C.	Was something you didn't really need because you were satisfied with your skills when the training started?	1	2	3	4	5	6	7
SETQ104 D.	Helped you do a better job?	1	2	3	4	5	6	7
SETQ104 E.	Benefited your subordinates?	1	2	3	4	5	6	7
SETQ104 F.	Increased the amount of work your subordinates do?	1	2	3	4	5	6	7 (41)

V. How did the other people who were trained in the same workshop group as you feel about the program?

To what extent:

	Not at all			Some extent			Great extent	
ETQ105A. Were others in your training group(s) cooperative?	1	2	3	4	5	6	7	(42)
ETQ105B. Were they "involved" in the training?	1	2	3	4	5	6	7	
ETQ105C. Did they support your efforts to learn and practice the skills in class?	1	2	3	4	5	6	7	
ETQ105D. Did others take the training seriously?	1	2	3	4	5	6	7	
ETQ105E. Were others willing to try out the new behaviors?	1	2	3	4	5	6	7	
ETQ105F. Did others seem to take the training as just a game?	1	2	3	4	5	6	7	
ETQ105G. Did others seem to act as if they were only sitting through the training because they were forced?	1	2	3	4	5	6	7	
ETQ105H. Was there an individual or group who resisted the program and lowered the overall enthusiasm?	1	2	3	4	5	6	7	
ETQ105I. Did others benefit from the program?	1	2	3	4	5	6	7	
ETQ105J. Did others actually change the ways they work with people?	1	2	3	4	5	6	7	

VI. How did other people in the organization feel about the program?

SETQ106A. Did the people above you in the chain of command support the program?	1	2	3	4	5	6	7	
SETQ106B. Did other key supervisors support the program?	1	2	3	4	5	6	7	
SETQ106C. Were your subordinates aware of the training program before it began?	1	2	3	4	5	6	7	
SETQ106D. Were your subordinates generally supportive of the training program?	1	2	3	4	5	6	7	
SETQ106E. Did your subordinates make fun of your attempts to use the skills?	1	2	3	4	5	6	7	
SETQ106F. Did your subordinates support your efforts to use the skills with them?	1	2	3	4	5	6	7	(57)

VII. What were the reasons for trying the skills?

To what extent did you try the skills:

	Not at all			Some extent			Great extent	
SETQ107A. Because the trainers were senior to you and not because you thought that the skills might work?	1	2	3	4	5	6	7	(58)
SETQ107B. Because the skills made sense?	1	2	3	4	5	6	7	
SETQ107C. Because the skills seemed to work?	1	2	3	4	5	6	7	
SETQ107D. Because you felt comfortable using the skills?	1	2	3	4	5	6	7	
SETQ107E. Because your supervisor supported using the skills?	1	2	3	4	5	6	7	(62)

VIII. What was it like going through the training?

SETQ108A. Overall, how would you rate the number of training sessions?

1. Too few.
2. About the right number.
3. Too many.

SETQ108B. Overall, how would you rate the pace of the training?

1. Too slow.
2. About right.
3. Too fast.

SETQ108C. Overall, how would you rate the complexity of the training?

1. Too simple.
2. About right.
3. Too complex.

(65)

IX. How much practice was done?

While you were participating in training, on the average:

SETQ109 A. How much time was spent practicing the Rehearsal Cards in each session?

- |                        |                              |
|------------------------|------------------------------|
| 1. Less than 5 minutes | 5. 31 to 40 minutes          |
| 2. 5 to 10 minutes     | 6. 41 to 50 minutes          |
| 3. 11 to 20 minutes    | 7. 51 to 60 minutes          |
| 4. 21 to 30 minutes    | 8. 61 to 70 minutes          |
|                        | 9. More than 70 minutes (66) |

SETQ109B. How many Rehearsal Card situations did you practice when using the cards in each session?

- |                      |                                 |
|----------------------|---------------------------------|
| 1. 0 to 1 situation  | 5. 8 to 9 situations            |
| 2. 2 to 3 situations | 6. 10 to 11 situations          |
| 3. 4 to 5 situations | 7. 12 to 13 situations          |
| 4. 6 to 7 situations | 8. 14 to 15 situations          |
|                      | 9. More than 15 situations (67) |

SETQ109C. How many times a week did you practice using the skills by fulfilling a fixed contract to practice?

- |          |                       |
|----------|-----------------------|
| 1. None  | 5. Four               |
| 2. One   | 6. Five               |
| 3. Two   | 7. Six                |
| 4. Three | 8. Seven              |
|          | 9. Eight or more (68) |

SETQ109D. How many times during a week did you set aside a time or place to look for chances to use the skills (spontaneous contracts)?

- |          |                       |
|----------|-----------------------|
| 1. None  | 5. Four               |
| 2. One   | 6. Five               |
| 3. Two   | 7. Six                |
| 4. Three | 8. Seven              |
|          | 9. Eight or more (69) |

SETQ109E. How many times between each session did your trainer talk to you about using the skills?

- |          |                  |      |
|----------|------------------|------|
| 1. None  | 5. Four          |      |
| 2. One   | 6. Five          |      |
| 3. Two   | 7. Six           |      |
| 4. Three | 8. Seven         |      |
|          | 9. Eight or more | (70) |

X. How many times did you talk about the Interact training program outside of class each week? (Please write the number of times in the box to the right)

- |  |                          |      |
|--|--------------------------|------|
| SETQ110A. With other people going through training?  | <input type="checkbox"/> | (71) |
| SETQ110B. With your instructor or other instructors? | <input type="checkbox"/> |      |
| SETQ110C. With your supervisor?                      | <input type="checkbox"/> |      |
| SETQ110D. With your peers?                           | <input type="checkbox"/> |      |
| SETQ110E. With your subordinates?                    | <input type="checkbox"/> |      |
| SETQ110F. With your family?                          | <input type="checkbox"/> | (76) |

XI. Overall:

- |   | Not at all |   |   | Some extent |   |   | Great extent |      |
|---|------------|---|---|-------------|---|---|--------------|------|
| SETQ111A. To what extent do you value the skills taught in the program?                 | 1          | 2 | 3 | 4           | 5 | 6 | 7            | (17) |
| SETQ111B. To what extent are you committed to using the techniques in the program?      | 1          | 2 | 3 | 4           | 5 | 6 | 7            |      |
| SETQ111C. To what extent did you become excited about using the skills in the program?  | 1          | 2 | 3 | 4           | 5 | 6 | 7            |      |
| SETQ111D. To what extent has this program interested you in more training of this type? | 1          | 2 | 3 | 4           | 5 | 6 | 7            | (20) |

CARD 2

In interviews people have told us that they often don't use the skills from training programs as often as they'd like. When asked why, they explain that, while they might want to use the skills, at times they "forget." They are so used to their old ways of doing things, they don't stop to think about using the new skills. In this section we'd like to ask you some questions about this problem.

XII. Please think of the times you have used skills from this program, and where you were when you thought to use the skills. We would like to know where people are and what they are doing when they "stop and think" of a chance to use these skills.

How frequently have the following statements been true for you:		Not at all							Several times							Very frequently						
		1	2	3	4	5	6	7														
SETQ112 a.	During a training session I thought of an opportunity to use one of the skills.																					(21)
SETQ112 b.	I had set aside a time to look for chances to use the skills, and during that time I saw (or thought of) a chance.																					
SETQ112 c.	I was not specifically looking for a chance to use the skills, but saw a problem in my work area and thought, "This is a chance to correct that problem I've never gotten around to solving."																					
SETQ112 d.	I didn't see the chance to use the skills at first, but found myself getting angry at someone and that reminded me to use the skills.																					
SETQ112 e.	I got halfway into a discussion and saw that what I had begun with wasn't working and that reminded me to use the skills.																					
SETQ112 f.	I thought to use the skills because the last time the discussion had blown up in my face and I had said to myself, "Next time I'll use the skills."																					(26)

XIII. SETQ113A Whenever you try something new, you have to concentrate on it. It's difficult and you have to pay close attention. With time, new activities become more familiar and you think about them less and less. For example, remember what it was like when you first learned to drive a car? It took a lot of thought at first, but with practice became routine. The same is true with new supervisory skills. The following list describes different stages in this change process. Please check the box (one only) that best describes your use of the new supervisory skills.

- a. I almost never use the new skills without "being aware of it" because they are still unfamiliar and take conscious effort. ☐
- b. I occasionally use the new skills without "being aware of it" because they are becoming more familiar and take less conscious effort. ☐
- c. I frequently use the new skills without "being aware of it" because they are becoming more familiar and take less conscious effort. ☐ (27)
- d. I nearly always use the skills without "being aware of it" because they are quite familiar and take little conscious effort. ☐

XIV. How frequently do you use skills from the training program. . .

	Not at all	1	2	3	4	5	6	7	Very frequently	
SETQ114a. At home with your family?		1	2	3	4	5	6	7		(28)
SETQ114b. At work with your subordinates?		1	2	3	4	5	6	7		
SETQ114c. At work with other supervisors?		1	2	3	4	5	6	7		
SETQ114d. At work with your immediate supervisor?		1	2	3	4	5	6	7		
SETQ114e. In volunteer settings (at church, clubs, etc.)		1	2	3	4	5	6	7		(32)



	How frequently do you use the different skills in the program?							
	Not at all				Several times			Very frequently
SETQ115a. Communicating the situation?	1	2	3	4	5	6	7	(33)
SETQ115b. Using positive reinforcement?	1	2	3	4	5	6	7	
SETQ115c. Solving motivation problems?	1	2	3	4	5	6	7	
SETQ115d. Solving ability problems?	1	2	3	4	5	6	7	
SETQ115e. Solving emergent problems?	1	2	3	4	5	6	7	(37)

XVI. Please rank order the usefulness of the different skills in the program. Place a "1" by the skill you find most useful, a "2" by the second most useful, a "3" by the third most useful, a "4" by the fourth most useful, and a "5" by the fifth most useful.

SETQ116 a. Communicating the situation.	_____	(38)
SETQ116 b. Using positive reinforcement.	_____	
SETQ116 c. Solving motivation problems.	_____	
SETQ116 d. Solving ability problems.	_____	
SETQ116 e. Solving emergent problems.	_____	(42)

XVII. Please rank order the training sessions by how interesting they were for you. Place a "1" by the most interesting session, a "2" by the second most interesting, a "3" by the third most interesting and a "4" by the fourth most interesting.

SETQ117a. The session covering communicating the situation and positive reinforcement.	_____	(43)
SETQ117b. The session covering motivation problems.	_____	
SETQ117c. The session covering ability problems.	_____	
SETQ117d. The session covering emergent problems.	_____	(46)

XVIII. If you were in charge of the training and interested in getting people to see all the opportunities to use the skills, what would you do?

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# APPENDIX B

## SUBQ PART III FACTOR ANALYSIS DOCUMENTATION

### A. EIGENVALUES, MEANS AND STANDARD DEVIATIONS

Variable	Est. Communality	Factor	Eigenvalue	Pct. of Var.	Cum. Pct.	Mean	Standard Dev.	Cases
SUBQ109A	0.37390	1	22.73058	46.4	46.4	4.4783	1.5051	92
SUBQ109E	0.87936	2	4.32835	9.9	56.2	4.4674	1.6538	92
SUBQ109C	0.92176	3	2.07609	4.2	59.5	4.2500	1.5236	92
SUBQ109D	0.83104	4	1.59553	3.3	62.7	4.2500	1.7265	92
SUBQ109E	0.77579	5	1.50208	3.1	65.8	3.5761	1.7112	92
SUBQ109F	0.83852	6	1.27250	2.6	68.4	3.2717	1.6515	92
SUBQ109G	0.84904	7	1.20079	2.5	70.8	3.1196	1.6893	92
SUBQ109H	0.72915	8	1.13418	2.3	73.1	3.3587	1.7452	92
SUBQ109I	0.65462	9	1.06730	2.2	75.3	3.5541	1.6796	92
SUBQ109J	0.91061	10	0.97399	2.0	77.3	4.6957	1.5100	92
SUBQ109K	0.88108	11	0.90176	1.8	79.2	4.4457	1.6533	92
SUBQ109L	0.79981	12	0.84431	1.7	80.9	3.4130	1.7675	92
SUBQ109M	0.87280	13	0.75969	1.6	82.4	3.4674	1.7381	92
SUBQ109N	0.88295	14	0.73078	1.5	83.9	4.2826	1.6194	92
SUBQ109O	0.86980	15	0.66443	1.4	85.3	4.2826	1.6053	92
SUBQ109P	0.75539	16	0.64252	1.3	86.6	3.2935	1.9784	92
SUBQ110A	0.79349	17	0.60701	1.2	87.8	4.5000	1.5724	92
SUBQ110B	0.86375	18	0.56344	1.1	89.0	4.5326	1.5860	92
SUBQ111A	0.86496	19	0.48170	1.0	90.0	2.7174	1.7054	92
SUBQ111B	0.87902	20	0.46129	0.9	90.9	3.0435	1.7969	92
SUBQ111C	0.79141	21	0.41574	0.8	91.7	4.6304	1.7113	92
SUBQ111D	0.88225	22	0.37495	0.8	92.5	4.5870	1.4836	92
SUBQ111E	0.86457	23	0.34653	0.7	93.2	4.4348	1.6847	92
SUBQ111F	0.89431	24	0.30049	0.6	93.8	4.6087	1.7094	92
SUBQ111G	0.89439	25	0.27826	0.6	94.4	3.3370	1.6326	92
SUBQ111H	0.91828	26	0.23647	0.5	94.9	2.9891	1.6206	92
SUBQ111I	0.85808	27	0.22405	0.5	95.3	2.8132	1.8213	92
SUBQ111J	0.86647	28	0.21877	0.4	95.8	2.7391	1.6698	92
SUBQ111K	0.87806	29	0.20707	0.4	96.2	4.5326	1.4635	92
SUBQ111L	0.87595	30	0.20133	0.4	96.6	4.5870	1.5839	92
SUBQ111M	0.84638	31	0.17906	0.4	97.0	4.0000	1.6442	92
SUBQ111N	0.84551	32	0.16851	0.3	97.3	2.9348	1.6495	92
SUBQ111O	0.90407	33	0.15941	0.3	97.7	2.9239	1.3171	92
SUBQ111P	0.88800	34	0.13363	0.3	97.9	4.6413	1.5869	92
SUBQ111Q	0.90372	35	0.11928	0.2	98.2	4.7391	1.6366	92
SUBQ111R	0.88038	36	0.11457	0.2	98.4	4.4130	1.6250	92
SUBQ111S	0.84664	37	0.10726	0.2	98.6	4.6304	1.7079	92
SUBQ111T	0.82574	38	0.09572	0.2	98.8	3.3370	1.5956	92
SUBQ111U	0.89195	39	0.08528	0.2	99.0	4.5543	1.5426	92
SUBQ111V	0.91688	40	0.08234	0.2	99.2	4.5543	1.6137	92
SUBQ111W	0.84129	41	0.06805	0.1	99.3	4.7022	1.6440	92
SUBQ111X	0.87510	42	0.06236	0.1	99.4	3.4674	1.6867	92
SUBQ111Y	0.87212	43	0.06002	0.1	99.5	3.4130	1.6250	92
SUBQ111Z	0.89147	44	0.04696	0.1	99.6	4.2500	1.7767	92
SUBQ112A	0.83710	45	0.04262	0.1	99.7	4.4783	1.7571	92
SUBQ112B	0.81335	46	0.04029	0.1	99.8	3.5543	1.8179	92
SUBQ112C	0.74166	47	0.03589	0.1	99.9	4.4348	1.7117	92
SUBQ112D	0.84071	48	0.02925	0.1	99.9	2.7283	1.7039	92
SUBQ112E		49	0.02776	0.1	100.0			

COMMUNICATIONS SECTION

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

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SUBJECT: [REDACTED]

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[REDACTED]

[illegible]

# APPENDIX C

## SUBQ PART II FACTOR ANALYSIS DOCUMENTATION

### A. EIGENVALUES, MEANS, STANDARD DEVIATIONS AND CORRELATION MATRIX FOR SUBORDINATE

#### PERCEPTION OF ORGANIZATIONAL CLIMATE

Correlation Coefficients...

	<u>SUBQ106A</u>	<u>SUBQ106B</u>	<u>SUBQ106C</u>	<u>SUBQ106D</u>	<u>SUBQ106E</u>	<u>SUBQ106F</u>	<u>SUBQ106G</u>
SUBQ106A	1.00000	0.73378	0.53254	0.51222	0.46592	0.59747	0.42435
SUBQ106B	0.73378	1.00000	0.63372	0.45511	0.61241	0.59163	0.43220
SUBQ106C	0.53254	0.63372	1.00000	0.56870	0.53315	0.50625	0.43090
SUBQ106D	0.51222	0.45511	0.56870	1.00000	0.49119	0.67585	0.51963
SUBQ106E	0.46592	0.61241	0.53315	0.49119	1.00000	0.58198	0.36763
SUBQ106F	0.59747	0.59163	0.50625	0.67585	0.58198	1.00000	0.47377
SUBQ106G	0.42435	0.43220	0.43090	0.51963	0.36763	0.47377	1.00000
SUBQ106H	0.40972	0.47597	0.43057	0.61112	0.42481	0.57419	0.70005
SUBQ106I	0.46528	0.48755	0.38107	0.54315	0.33519	0.45085	0.53494
SUBQ106J	0.47625	0.53987	0.34391	0.57339	0.37086	0.58122	0.55657
SUBQ106K	0.36191	0.34099	0.29882	0.54715	0.27650	0.48270	0.34646
SUBQ106L	0.33878	0.44807	0.40771	0.58537	0.53053	0.55075	0.43576
SUBQ106M	0.59449	0.59314	0.39868	0.62397	0.49234	0.58842	0.53704
SUBQ106N	0.53977	0.60202	0.49195	0.64546	0.48480	0.63243	0.50359



	<u>SUBQ106H</u>	<u>SUBQ106I</u>	<u>SUBQ106J</u>	<u>SUBQ106K</u>	<u>SUBQ106L</u>	<u>SUBQ106M</u>	<u>SUBQ106N</u>
SUBQ106A	0.40972	0.46528	0.47625	0.36191	0.33878	0.59449	0.53977
SUBQ106B	0.47597	0.48755	0.53987	0.34099	0.44807	0.59314	0.60202
SUBQ106C	0.43057	0.38107	0.34391	0.29882	0.40771	0.39868	0.49195
SUBQ106D	0.61112	0.54315	0.57339	0.54715	0.58537	0.62397	0.64546
SUBQ106E	0.42481	0.33519	0.37086	0.27650	0.53053	0.49234	0.48480
SUBQ106F	0.57419	0.45085	0.58122	0.48270	0.55075	0.58842	0.63243
SUBQ106G	0.70005	0.53494	0.55657	0.36646	0.43576	0.53704	0.50359
SUBQ106H	1.00000	0.59592	0.55569	0.36921	0.52071	0.58934	0.58743
SUBQ106I	0.59592	1.00000	0.74307	0.40939	0.40993	0.46955	0.47731
SUBQ106J	0.55569	0.74307	1.00000	0.48341	0.44495	0.49365	0.62583
SUBQ106K	0.36921	0.40939	0.48341	1.00000	0.48022	0.60518	0.49074
SUBQ106L	0.52071	0.40993	0.44495	0.48022	1.00000	0.60761	0.56603
SUBQ106M	0.58934	0.46955	0.49365	0.60518	0.60761	1.00000	0.71161
SUBQ106N	0.58743	0.47731	0.62583	0.49074	0.56603	0.71161	1.00000

<u>Variable</u>	<u>Est. Communality</u>	<u>Factor</u>	<u>Eigenvalue</u>	<u>Pct. of Var.</u>	<u>Cum. Pct.</u>	<u>Mean</u>	<u>Standard Dev.</u>	<u>Cases</u>
SUBQ106A	0.64233	1	7.66378	54.7	54.7	3.9792	1.4215	96
SUBQ106B	0.73736	2	1.14994	8.2	63.0	4.2604	1.3475	96
SUBQ106C	0.58054	3	0.92368	6.6	69.6	3.9688	1.6121	96
SUBQ106D	0.68766	4	0.76954	5.5	75.0	4.0625	1.6210	96
SUBQ106E	0.51816	5	0.58190	4.2	79.2	3.1875	1.6112	96
SUBQ106F	0.64762	6	0.56087	4.0	83.2	3.7500	1.6670	96
SUBQ106G	0.56598	7	0.46320	3.3	86.5	3.6250	1.4528	96
SUBQ106H	0.65111	8	0.41196	2.9	89.5	3.8750	1.4956	96
SUBQ106I	0.63911	9	0.36020	2.6	92.0	4.0208	1.3375	96
SUBQ106J	0.71696	10	0.32412	2.3	94.4	4.3229	1.5183	96
SUBQ106K	0.47862	11	0.29214	2.1	96.4	4.9792	1.6156	96
SUBQ106L	0.52550	12	0.18741	1.3	97.8	4.0521	1.8602	96
SUBQ106M	0.72254	13	0.17803	1.3	99.0	4.0208	1.5077	96
SUBQ106N	0.66757	14	0.13320	1.0	100.0	4.0417	1.6474	96

B. EIGENVALUES, MEANS, STANDARD DEVIATIONS AND CORRELATION MATRIX FOR  
SUBORDINATE SATISFACTION

Correlation Coefficients..

	<u>SUBQ107A</u>	<u>SUBQ107B</u>	<u>SUBQ107C</u>	<u>SUBQ107D</u>	<u>SUBQ107E</u>	<u>SUBQ107F</u>
SUBQ107A	1.00000	0.39053	0.48247	0.57275	0.07953	0.65019
SUBQ107B	0.39053	1.00000	0.31320	0.49930	0.22334	0.42493
SUBQ107C	0.48247	0.31320	1.00000	0.51585	-0.04857	0.38942
SUBQ107D	0.57275	0.49930	0.51585	1.00000	0.36612	0.68846
SUBQ107E	0.07953	0.22334	-0.04857	0.36612	1.00000	0.34150
SUBQ107F	0.65019	0.42493	0.38942	0.68846	0.34150	1.00000

<u>Variable</u>	<u>Est. Communality</u>	<u>Factor</u>	<u>Eigenvalue</u>	<u>Pct. of Var.</u>	<u>Cum. Pct.</u>	<u>Mean</u>	<u>Standard Dev.</u>	<u>Cases</u>
SUBQ107A	0.51487	1	3.09684	51.6	51.6	4.9898	1.4251	98
SUBQ107B	0.27508	2	1.10834	18.5	70.1	4.3163	1.0802	98
SUBQ107C	0.36869	3	0.65834	11.0	81.1	4.8673	1.5574	98
SUBQ107D	0.61948	4	0.55249	9.2	90.3	4.5816	1.6241	98
SUBQ107E	0.26137	5	0.32275	5.4	95.6	3.1939	1.8369	98
SUBQ107F	0.59578	6	0.26123	4.4	100.0	3.9898	1.6466	98

C. EIGENVALUES, MEANS, STANDARD DEVIATIONS AND CORRELATION MATRIX FOR

SUBORDINATE COMMITMENT

Correlation Coefficients..

	<u>SUBQ108A</u>	<u>SUBQ108B</u>	<u>SUBQ108C</u>
SUBQ108A	1.00000	0.17257	0.28571
SUBQ108B	0.17257	1.00000	0.63356
SUBQ108C	0.28571	0.63356	1.00000

<u>Variable</u>	<u>Est. Communality</u>	<u>Factor</u>	<u>Eigenvalue</u>	<u>Pct. of Var.</u>	<u>Cum. Pct.</u>	<u>Mean</u>	<u>Standard Dev.</u>	<u>Cases</u>
SUBQ108A	0.08175	1	1.77062	59.0	59.0	5.0306	1.9396	98
SUBQ108B	0.40147	2	0.87430	29.1	88.2	4.0204	1.7230	98
SUBQ108C	0.43346	3	0.35506	11.8	100.0	3.6327	2.1413	98

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